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CONTENTS.

	Page.
Is Senator Jones a Fit Representative of the United States?	1
The "Times" Scores the Mill Ring	1
The Poor Outlook for the English Iron Industry	1
Gold Production of the Rand (S. A.), and the Cyanide Process	1
Free Coinage Arguments	2
New Publications	2
Let Comstock Mine Stockholders Unite.—J. A. Tingman	3
Allit—Shall We Rename Aluminum?	3
Shaft Furnaces for Tin Ores.—W. de L. Benedict	3
Cyanide Process in Arizona.—J. P. Haynes	3
How the Comstock Mill Ring Has Made Millions.—J. H. Tingman	3
* Coal Washing and Separating Plant at Zollern, Near Dortmund, Germany	4
* Mines and Mills in Pribram in Bohemia.—IV.—John W. Meier	5
* The Lake Champlain Meeting of the American Institute of Mining Engineers	6, 7, 8, 9, 10
Recent Decisions Affecting the Mining Industry	11
* The Merrill Parallel Swivel Vise	11
* Climax Wrench and Hinged Pipe Vise	11
Dividends Paid During June and From January 1st, 1892	11
Patents Granted	11
Personals—Obituary—Export Notes—World's Fair Notes—Industrial Notes—Machinery and Supplies Wanted	12-13

* Illustrated.

MINING NEWS:		Utah	16	MINING STOCK TABLES:	
Arizona	13	FOREIGN:		New York	22
California	13	British Col.	17	Boston	22
Colorado	13	Mexico	17	Coal Stocks	22
Georgia	14	Ontario	17	San Francisco	22
Idaho	14	South Africa	17	Baltimore	24
Indian Ter.	14	Venezuela	17	Deadwood	24
Kansas	14	MEETINGS	18	Helena	24
Michigan	14	DIVIDENDS	18	Pittsburg	24
Missouri	15	ASSESSMENTS	18	St. Louis	24
Minnesota	15	MINING STOCK MARKETS:		Aspen	24
Montana	15	New York	18	London	24
Nevada	15	Boston	18	Paris	24
New Mexico	16	San Francisco	18	MARKETS:	
Pennsylvania	16	Pipe Line	18	COAL:	
South Dakota	16			New York	18
				Boston	19
				Chicago	19
				Pittsburg	19
				IRON:	
				New York	20
				Buffalo	20
				Chicago	20
				Louisville	21
				Philadelphia	21
				Pittsburg	21
				CHEMICALS AND MINERALS	17
				CURRENT PRICES	
				Chemicals	24
				Minerals	24
				Rarer Metals	24
				ADVT. INDEX	21

IT is said that President HARRISON has selected Senator JOHN P. JONES, of Nevada, as one of the United States delegates to the International Monetary Conference. Surely President HARRISON must be ignorant of the fact that Senator JONES is the president and one of the chief owners of the Nevada Mill and Mining Company, which has recently been convicted in San Francisco of defrauding the stockholders of the Hale & Norcross Mining Company out of more than $1,000,000. The only reason why Senator JONES was not personally convicted and held liable for the amount stolen by his agents and associates, as were his partners, HAYWARD and HOBART, and the company of which he is president, was that he carefully kept himself out of the jurisdiction of the Court. We trust the President will not bring such a disgrace upon the United States as would be involved in the appointment, as its representative, of the chief beneficiary of the infamous Comstock mill ring, the guilty partner of men who have been convicted in court of fraudulent practices. There are honest and upright men enough in this country from whom the President can make the appointment and let us hope we may be saved this disgrace at least.

THE New York *Times*, by far the ablest and most influential of the great New York morning papers, has been firing hot shot into the Comstock Mill ring, and has extended repeated invitations to Senator JOHN P. JONES to explain and defend himself from the charges of fraud and conspiracy contained in Judge HEBBARD'S decision against the Nevada Mill and Mining Company, of which he is president and one-fifth owner, and of which his brother, and his mill manager, EVAN WILLIAMS, are also directors and part owners.

The *Times* also calls upon Congress to investigate the Carson Mint, of which T. R. HOFER, the chief clerk and practically the acting superintendent, is the cashier of the Mill Ring's Bullion and Exchange Bank, and has made of the mint a "fence" through which the stolen bullion of the Comstock mines was disposed of and converted into United States *gold coin*, for it is well known that the mill ring has always required the mint to pay in gold drafts on San Francisco for its bullion, except such as was required to pay wages at the mines. Silver was good enough for wage earners, but the thieves of the ring, of which Senator JONES is president, required gold for themselves.

The *Times* can repeat its glorious achievement in breaking up the New York Tweed ring by continuing its exposure of the Comstock swindles.

The gradual decline of the British iron trade is brought out by the official statistics of the production of iron and steel, and interesting side lights on the situation are offered by the history of individual companies. We referred a few weeks ago to the voluntary winding up of the West Cumberland Iron and Steel Company after a prolonged struggle against bad trade. This week we hear that the proprietors of the Glengarnock Iron and Steel Works in Scotland, the manufacturers of the Glengarnock brand of pig iron, are attempting privately to float their works into a limited company. In their prospectus they say that though the value of their property is assessed at £629,927 they are willing to take a breaking-up price of £363,656, half in cash and half in shares. They estimate their profits in the future to be £58,500 a year, but they refrain from making any statements of past profits. They say however that they have shared with other works in the general depression of trade, and this we presume is equivalent to confessing the absence of profits or even the presence of a loss. This attempted transaction is not a particularly attractive one, to say the least, but we mention it because the desire of the owners to scramble out of their responsibility and secure some cash for their property before things grow worse affords us some insight into the state of the iron trade in Great Britain and its probable future, which seems black enough.

THE GOLD PRODUCTION OF THE "RAND" S. A. AND CYANIDE EXTRACTION.

The output of the Witwatersrand for April was 95,562 ounces of gold, obtained from a total of 153,197 tons of ore crushed, being an average yield of 9·33 pennyweights per ton from the ore, and 3·1 pennyweights from the tailings and concentrates. The estimate for May is 99,436 ounces. From this yield it is interesting to turn to that of 1889 to see how nearly the prediction of Mr. EDWARD BATES DORSEY has been fulfilled. In a letter to THE ENGINEERING AND MINING JOURNAL published July 20, 1889, Mr. DORSEY, after giving the yield for 1887 and 1888, said "that the yield for 1889 will be at least seven per cent., and in 1890 probably twelve per cent., of the total yield of the world." He further adds "unless there is a corresponding increase in the production of silver this large increase in the yield of South Africa in gold will depreciate the comparative value of gold and enhance that of silver."

The output of the Rand since 1888 as compared with the world's output has been as follows estimating the value of the Rand gold at $17.50 per ounce:

		The Rand value.	World value.	Rand %.
1889	379,733 oz.	$6,643,328	$12,438,464	15.4
1890	494,801 oz.	10,885,618	116,008,900	9.3
1891	729,223 oz.	12,761,392	125,300,000	10·2

For the first five months of this year the production has been 459,507 oz., showing a probable output of 1,200,000 oz. in the year.

Although these proportions are not as high as predicted by Mr. DORSEY, they are sufficiently close to make it a good prophecy. In other respects, however, Mr. DORSEY's predictions have failed somewhat of realization.

In a paper read at a meeting of the British Association Mr. DORSEY stated that "by January 1st, 1890, 2,000 stamps would be dropping, giving a monthly output of 75,000 oz.," whereas even to-day there are but 1,880 stamps in operation, though the output is above 90,000 oz. per month; showing that the gain made is not solely due to the increased number of stamps. The true explanation is to be found in the close working of the ore and in the recovery of metal from the tailings, as is shown by the figures for April of 1891 and 1892. For the month of April 1st, 1891, but 1,736 oz. were returned as obtained from tailings and concentrates, whereas during the month of April of this year 14,000 oz. were obtained from that source.

From the report of the Chamber of Mines cited it appears that 10,038 oz. were obtained from tailings treated by the cyanide or MACARTHUR-FORREST process in April, while nearly 4,000 oz. were obtained by the chlorination of concentrates. The figures on the yield of the cyanide process are interesting, but they would have been more valuable if the amount of tailings treated, the assay value and the percentage recovered had been given. In the report of the Ferreira Quartz Mining Company it is stated that during the six months ending 31st March, 15,310 tons of tailings had been treated by the MACARTHUR-FORREST process, at a cost of 11 shillings 8.63 pence (say $3) per ton, and with an average extraction of 74¼ per cent. This result is much below the extraction by barrel chlorination, and the cost, exclusive of royalty but with the additional cost of crushing added, is greater than that at a 120-ton mill in our Western States, say in South Dakota, and no royalty is asked on chlorination.

Mr. DORSEY's prediction that the price of silver would be advanced by the larger yield of gold, as is well known, has not been fulfilled, owing to the fact that the production of silver is increasing at a still more rapid rate than that of gold.

THE FREE COINAGE ARGUMENTS.

The American Bimetallic League has issued a chart compiled by a certain GEO. O. JONES, which purports to show "how England develops the resources of India, feeds her people at home cheaply and enriches her creditors, while she bankrupts American farmers and paralyzes legitimate business in this country by keeping down the price of silver." It is an admirable illustration of how blind those may be who won't see. The argument used is crystallized in the following table:

"The following table will show the prices that can be paid for wheat and cotton in India, and the difference in their cost in gold when laid down in England with silver selling at 90c., or 129¼c. per oz.:

Cost in India.	Gold cost in England with silver selling at 90c. per oz.	Gold cost in England with silver selling at $1.29¼ per oz.	Difference.
Wheat, $1.10 per bush...	88¾c. per bush.	$1.20¼ per bush.	3½c. per bush.
Cotton, 11½c. per lb.....	8c. per lb.	11¼c. per lb.	3¼c. per lb.

"This table shows how England can pay high prices for farm products in India and feed her own people cheaply through her control over the coinage laws of both countries. American farm products must compete with gold prices in England. This explains the present low prices for American farm products and suffering among their producers."

Everyone of course knows that prices for wheat and cotton are made in England and not in India or America, and in England the same price per bushel is paid in gold for American and Indian wheat and cotton of equal quality. If therefore the freight from England to the producing country be added to this price we get the value in gold there. If the currency of the producing country is a depreciated one, gold will buy more of it, and since India is a free silver coinage country, there is consquently no gold in circulation, and its silver coins are worth only their bullion value, say 70 cents to the dollar, precisely as would be the case here if we had free silver coinage.

If the producer can pay the same rate of wages in depreciated currency as in gold, then the more it is depreciated the less his wheat and cotton will cost him in gold, and the less will the wage-earners get in gold value for their labor.

The questions for the free coinage advocates to answer are: 1st. Do they desire a depreciated silver currency like India? If they do, under the impression that it would reduce the gold cost of production and enable us to compete with India, then they must expect our workmen to accept the 70 cents' worth of silver for a dollar without any increase in the wages rate. If the free coinage advocates believe that a depreciated currency is advantageous to us, why not propose to reduce the amount of silver in a dollar to 25 or 35 cents instead of 70 cents; or, better yet, issue an irredemable legal tender paper currency that would soon be selling at one per cent. of its face value, as it did under the Confederacy?

By legally forcing our workmen to accept these paper dollars without increasing the rate of wages we could supply Europe with wheat and cotton at half their cost in India, and would have the satisfaction of bankrupting that infamous cheap producer; but what would become of our workmen, reduced to wages much below those of the Indian ryot? What good were the $10 a day pay in Confederate money, when the possessor of it had to give $100 of it for a pair of shoes?

The "Bimetallic League" is misnamed, for if it should succeed in its object—the enactment of free silver coinage—it would secure silver monometallism. The gold would disappear as it has in every free silver coinage country, and as it did here when we issued too many greenbacks.

Why don't the free coinage advocates answer these statements?

In every country in the world that has free silver coinage gold has disappeared from circulation. The same would be true here, and would lose us more than half our circulating money.

Every civilized country that has the silver standard wants to get out of it. No country that had free silver coinage, and stopped it, wants to go back to it.

Every country that has commercial relations with the great industrial nations (all of which have the gold standard) must count its cost of production, whether of wheat, cotton, copper or other exported articles, in gold, no matter what currency the workmen producers may be paid in, and the more this currency is depreciated the lower will be the actual reward for the labor of these.

True bimetallism, that is the actual use and circulation of both gold and silver, can only be established by international agreement. The ENGINEERING AND MINING JOURNAL favors that solution, but is opposed to the mono-silver standard, and to placing this country in the position of India, Mexico and other free silver coinage countries. The vast majority of the American people are also opposed to free silver coinage, as is proved conclusively by the utter rejection of it by both the political parties.

NEW PUBLICATIONS.

JOHNSON'S TABLES, stadia and earthwork tables, four place logarithmic traverse tables, natural functions, map projections, etc. Reprinted from Theory and Practice of Surveying by J. B. Johnson, Professor of Coal Engineering, Washington University, St. Louis. John Wiley & Sons, New York. 99 pages, price $1.25.

This little work, as stated in the title, is a reprint of a portion of the author's "Theory and Practice of Surveying." He states in his preface that the great use made by engineers of three of the tables, viz., the four place logarithmic tables, the stadia table and the table giving prismoidal volumes have necessitated the binding of these in more convenient form than that in which they first appeared. The other tables from the original work and the chapter of measurement of volumes is also included.

A DICTIONARY OF ELECTRICAL WORDS, TERMS AND PHRASES, by Edwin J. Houston, A. M. 2d edition, rewritten and greatly enlarged. The W. J. Johnston Co., N. Y. 562 pages. 568 illustrations, price $5.00.

The present work contains more than double the matter and about twice the number of definitions that appear in the earlier work. Although some of this increase has been due to words which should have been in the first edition, yet in greater part it has resulted from an actual multiplication of the words used in electrical literature. We heartily commend this work for the use of every student of electricity, but more especially do we advise its use by the ever increasing number of those who write upon the subject. One of the difficulties a student of electricity has to contend with is the use by different writers of the same word with different meanings, and the indiscriminate coining of useless new words to represent old ideas. The use of a good dictionary is the best preventive of such confusion, and it would be a good thing for electric science and literature if there were some way found to discourage the use of any electrical terms not found in the dictionary, and the use of such a term with any other than its dictionary meaning. If a newly coined word is necessary in any case it should be approved by a body of expert linguists and scientists before being allowed to be used. Such a rule would exclude from Prof. Houston's dictionary many of the words in it, but in its absence he has done as well as possible under the circumstances in visiting with his condemnation many useless words, and in exposing the contradictory meaning given to some of them.

A notable example of the latter is "entropy," of which he gives the definition of Clausius and Mayer "in thermo-dynamics, the non-available energy in any system," followed by that of Tait, Thomson and Maxwell, "in thermodynamics, the available energy in any system."

In other cases he shows that a word has not come into actual use by saying "it is a word proposed for," etc. For example, electrothanasis, electrothanatosis, electrotisis and electrozemia are mentioned as words proposed for death by electricity. We would suggest that in the next edition of the dictionary such proposed words be left out, unless they have the sanction of some technical society or other body of equal authority.

The dictionary is encyclopedic in character, giving in addition to concise definitions considerable explanatory matter and numerous illustrations. It is handsomely printed, thoroughly cross-indexed, and while, as the author admits, it is far from being perfect, it is altogether an admirable and most useful work.

The Determination of Slag in Puddled Iron.—A useful paper on this subject was recently read by Mr. Thomas Turner, before the English Chemical Society. After many experiments Mr. Turner has adopted the plan of treating the iron in which the slag is to be determined with a solution of sodium cupric chloride, with precautions to avoid the precipitation of a basic iron salt; the residue is washed repeatedly with small quantities of the solvent, and is afterward collected on a filter from which it is brushed; the carbon is then burnt off and the slag weighed. The investigation which led to the experiments on the existing methods of determining slag went to show that the well known fact that a higher yield of puddled bar is obtained from common than from best pig is due to the reduction of the fettling of the puddling furnace by the impurities in the pig being greater in the former case, and not to the inclosure of a greater quantity of slag. Such inclosure does take place, but after allowing for it there is a net gain of about 5% due to the cause previously mentioned.

CORRESPONDENCE.

We invite correspondence upon matters of interest to the industries of mining and metallurgy. Communications should invariably be accompanied with the name and address of the writer. Initials only will be published when so requested.
All letters should be addressed to the MANAGING EDITOR.
We do not hold ourselves responsible for the opinions expressed by correspondents.

Let Comstock Mine Stockholders Unite.

SAN FRANCISCO, June 20, 1892.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: We are in receipt of a number of letters from parties who have obtained the name of our Association from your columns.

Will you be kind enough to say to your readers that we would be pleased to hear from all holders of shares in Comstock mines with a view of extending the influence of the organization. There is no expense attached to membership.

Address Room 8, 324 Pine street, San Francisco.

MINING STOCK ASSOCIATION, J. H. Tingman, Secretary.

Allit—Shall We Rename Aluminum?

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: Some time ago there was a movement in favor of a short name for the metal aluminum, but none of the names suggested seem to have met with approval. I beg to suggest for everyday and convenient use the name allit, a word made up of the chemical symbol al, and an abbreviation of the adjective "light," which denotes one prominent characteristic of the metal. The word "allit" has a distinct sound of its own, will take its place with other short names of metals such as iron, steel, copper, etc., and lends itself readily to such combinations as allit bronze. I believe the name suggested will find favor on its own merits, and hope that its appearance in your columns will attract the attention of parties who can give it a trial in practical use. MEM. A. I. M. E.

CORBURN, Va., June 25, 1892.

Shaft Furnaces for Tin Ores.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: Replying to the inquiries of "A Tin Mine Proprietor" in to-day's issue of the ENGINEERING AND MINING JOURNAL, it may be said that water jacket furnaces (shaft furnaces) are not considered suitable for reducing tin ore (cassiterite) because of the great loss from the volatilization of the tin. This loss is usually reckoned at 15% in the shaft furnace, and but 5% in the reverberatory furnace.

With crude petroleum at $1.75 per barrel (42 gallons), it is said to cost less to reduce tin ore in the San Jacinto, Cal., reverberatory furnace than it does with coal at 15 shillings ($3.75) per ton of 2,240 lbs. in similar furnaces in Cornwall, England.

There are no data obtainable as to the use of gaseous fuel for the same purpose. W. DE L. BENEDICT.

No. 18 BROADWAY, NEW YORK, June 25, 1892.

The Cyanide Process in Arizona.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: Your esteemed favor of June 8th came in due time, just as I was getting ready to start out with some parties from Denver to look over several groups of mines, and I left it on my desk to answer on my return. We have just returned and the letter has been spirited away during my absence and I have not been able to find it, so cannot answer it in detail, but will simply say as far as we have gone the MacArthur-Forrest Process is giving good satisfaction, and doing good work, and for a place so remote from smelters, and transportation so high, it is a big boon to miners. It costs from $40 to $60 a ton to ship and smelt the ores in this locality and we find we can work many of these ores right on the ground for three to six dollars a ton. We do not claim to work every ore.

We find the MacArthur-Forrest process does work very many of these rebellious ores up as high as 85 to 95% and at a small cost, and in all such cases we do recommend it very strongly. We are now working a pile of tailings that only run a trifle over $5 a ton, and they only consume one pound of cyanide to the ton, making a very nice profit to the owner. Soon as the tailings are all run through they are going to work the dump, which is composed of ore that could not be shipped or worked by their mill at any profit. Then they are to take ore right from the mine and run through. There are many mines in this locality with plenty of ore, running from $15 to $40 a ton, that is very rebellious and could not be worked by any known process before. J. P. HAYNES.

President Yavapai Gold and Silver Extraction Company.

PRESCOTT, Ariz., June 24, 1892.

How the Comstock Mill Ring Has Made Millions.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: Now that the special manner in which the Hale & Norcross mine has been robbed has been exposed, the general system in which the various mill companies control and manipulate the other mines will interest the public. There are three mill companies on the Comstock Lode: The Comstock Mill Company, owned and controlled by John P. Jones, John W. Mackay and James L. Flood, controls the Consolidated California & Virginia Mining Company and the Sierra Nevada, Union Consolidated, Mexican, Ophir, Best & Belcher and Gould & Curry. The Nevada Mill and Mining Company, composed of John P. Jones, Alvinza Hayward, W. S. Hobart (dead), Sam Jones, A. C. Hamilton and various stockholders (for the proportion owned by each see ENGINEERING AND MINING JOURNAL, May 28th, 1892). This corporation controls or controlled the Hale & Norcross, Savage, Chollar, Potosi, Bullion, Exchequer and Alpha. The Union Mill and Mining Company is owned by J. P. Jones, D. O. Mills, the Sharon Estate, Samuel Jones (J. P. Jones' brother), F. G. Newlands and R. F. Morrow. This corporation controls the Imperial, Yellow Jacket, Crown Point, Belcher, Overman, and a number of less important mines. The methods pursued by these three mill companies in robbing the mines is almost identical, the only exception being the Yellow Jacket mine, which, being a Nevada corporation, is bodily robbed, and no pretense made of returning anything to the corporation except just enough to give them the privilege of assessing the company to pay for the milling at $7.00 per ton.

The Union Mill and Mining Company was the parent corporation. Its thieving operations were carried on for years with a daring which has only been equaled by the nefarious gang who have been exposed in the Hale & Norcross suit.

Out of the stealings by the Union Mill and Mining Company grew the fortune left by Wm. Sharon, which at his death was estimated to be $20,000,000, the fortune of D. O. Mills, which is estimated to amount to $10,000,000, and other fortunes which amount to fully $10,000,000. These amounts, taken with others which have been spent, show a cold steal aggregating some $60,000,000, at the least. This Mill company keeps on hand at all times 60,000 shares of the capital stock of the Yellow Jacket Company to insure them the control of this mine. Through it they can reach the mines on each side and when any ore is found it is taken out through the Yellow Jacket shaft and no one is the wiser as it is appropriated bodily to the use of the Mill company. The superintendent of the Yellow Jacket mine is also superintendent of the Union Mill Company's mills. Both properties are, therefore, under the same control.

The system pursued by the Union Mill and Mining Company in robbing the mines under their control was undoubtedly the conception of the late William Sharon, whose mind was admittedly of a Mephistophelian type, and whose gigantic robberies have never been approached by the petty larcenists who have followed, or rather attempted to follow, in his footsteps. He undoubtedly was a master, and the pirates who made their victims walk the plank were not more cruel and heartless than he. Since his death the bulk of the stealing has been from or through the Yellow Jacket mine.

The next milling corporation to be formed was the Comstock Mill Company. This company owned the Eureka mill, recently burned, and the Morgan mill. This company has made a specialty of handling the Consolidated California & Virginia ore. Under an arrangement made by the members of this company, there was pooled some years ago 40,000 shares of Union Consolidated, 40,000 Sierra Nevada, 40,000 Mexican, and 40,000 Ophir. The pool was to continue for six years, and the time has not as yet expired. These stocks were locked up for the purpose of keeping control of these mines.

In order to pay the assessments on these stocks it was arranged that the rebates on wood, water and commissions on supplies should be applied to this purpose, and any deficit was made up from the annex pans of the Comstock Milling Company's mills.

The Nevada Mill and Mining Company is the last combination formed for the looting of the mines of the Comstock. Its working in connection with the Hale & Norcross mine has been thoroughly ventilated in the suit brought by M. W. Fox, but its working in connection with the Savage, the Chollar and the Potosi mines has not been laid bare to the public, but when it is (as it will be) it will be simply appalling. The amount stolen from these mines is far in excess of the amount taken from the Norcross.

At the Chollar mine the ore is extracted from the mine and taken to the Nevada mill and dumped. As far as known no assays are made of the ore and it is never weighed before being turned over to the thieves owning the mill. It is true that assays are given, but there is evidence that these are arbitrary and bear no relation to the ore extracted. They simply take the ore, dump it into the mill, give the company just enough to make sure that assessments will be levied on stockholders to pay the outrageous $7 per ton milling charge, and appropriate the balance.

The Potosi mine, also under the same management, is at the present time reporting $27 ore. The mine has never been known to have any ore in it of this value, and it is a cold case of their having either robbed some other mine to get ore of this grade or falsified the assays. There also is a record on the Potosi books (of which a copy exists) of a credit to the Potosi Company of about $100,000 worth of bullion, when the official records of Storey County does not show that that company produced any ore at the time the bullion was credited. The motive for this was to sell the stock on the market. The policy of this milling company is somewhat different from that pursued by the others, as they have floated the bulk of the stock of the companies they control, the only exception being the Potosi—this is the reason why the $100,000 was passed to the credit of this company, and why assays are given high enough to save the necessity of assessments. The assessments would come out of the pockets of the owners of the Nevada mill, but the bullion comes out of the pockets of shareholders in other mines.

It is impossible to give in detail the continuous rascalities practiced by the thieving scoundrels who for so many years have controlled the great body of mineralized quartz. It has been the history of wrong, fraud and dishonesty, of political chicanery, of every kind of depravity and wrongdoing that illiterate and degraded human beings could invent when for the first time possessed of wealth greater than they ever imagined or expected to possess. It has been the habit of some of them to annually raid the people of this coast to obtain the necessary funds to keep their degraded connections in ease and luxury where depravity is the rule and morality the exception.

You note in your issue of the 11th of June the decadence of the output of ore in the State of Nevada. It is evident that you do not understand the cause of this and we will therefore explain it. When silver first began to decline it was arranged among the cliques or mill rings controlling the Comstock lode that only enough ore to supply the needs of those rings should be extracted. J. P. Jones was to work the free coinage business in the Senate of the United States.

This arrangement continues at the present time, and there will be no increased output from the Comstock until the question of free coinage is settled one way or the other, or until the gang of thieves is routed from the lode. Yours truly, MINING STOCK ASSOCIATION,

SAN FRANCISCO, June 18, 1892. Per J. H. TINGMAN, Secretary.

Method of Determining the Thermal Expansion of Small Bodies.—Mr. J. Joly, of Dublin, has invented an ingenious instrument for measuring the thermal expansion of minute solid bodies. The substance is placed in the field of a microscope and a greatly enlarged image of it is thrown on a screen. This image is further magnified by two micrometer microscopes, which serve to measure the expansion. The substance is heated in a little platinum oven traversed by an electric current, and the temperature in the oven is determined by observations on the melting of standard substances. In this way it has been found possible, for instance, to determine the thermal expansion of the smallest diamond until the temperature of combustion is reached.

COAL-WASHING AND SEPARATING PLANT AT ZOLLERN, NEAR DORTMUND, GERMANY.

Owing to a fire which took place last summer at the Gelsenkirchen-Bergwerks-Actien-Gesellschaft, at Zollern, near Dortmund, destroying the existing coal-washing machinery, the erection of a new and improved plant was at once decided upon, and to avoid a similar catastrophe in future, the new works were planned to be as nearly as possible fireproof, with iron columns, girders and roofs, and arched floors in place of the usual wooden structure, says London *Engineering*. Only the coke tower, in which part of the old material was utilized, was built again in wood.

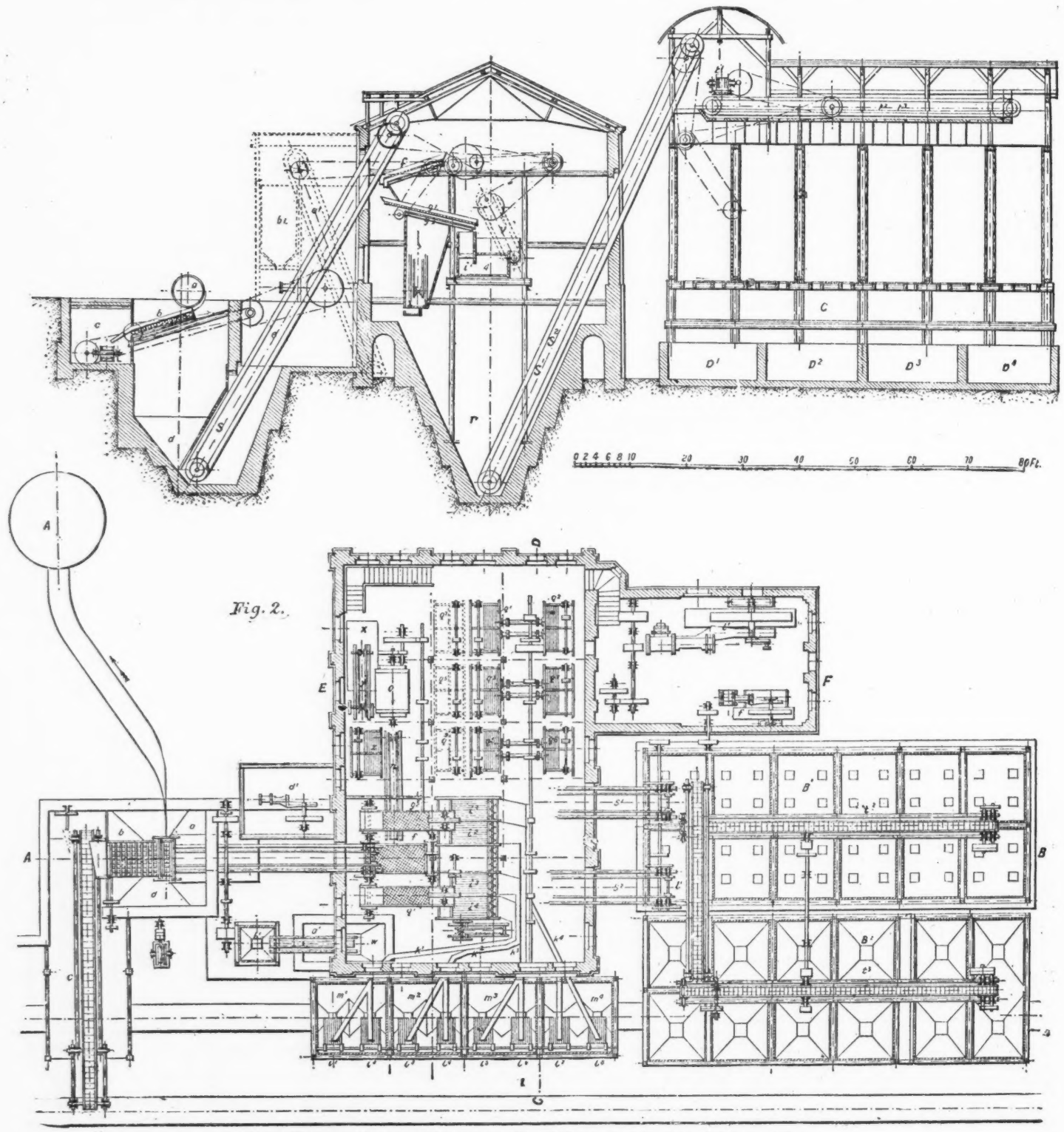


Fig. 2.

COAL WASHING PLANT AT ZOLLERN. FIG. 1 SECTION *A B*. FIG. 2 GROUND PLAN.

The capacity of these works was fixed for treating 80 tons of coal from the pit daily and separating these into three sorts: first, washed coking coal of from 0 mm. to 10 mm. (0 in. to $\frac{3}{8}$ in.); second, nuts in four sizes, viz., 10 mm. to 16 mm. ($\frac{3}{8}$ in. to $\frac{5}{8}$ in.); 16 mm. to 28 mm. ($\frac{5}{8}$ in. to $1\frac{1}{8}$ in.); 24 mm. to 45 mm. ($1\frac{1}{8}$ in. to $1\frac{3}{4}$ in.), and 45 mm. to 80 mm. ($1\frac{3}{4}$ in. to 3 in.); and third, hand-selected coal in lumps above 80 mm. (3 in.).

The works are fully illustrated in the accompanying engravings. The position of the pit *A* is shown in the plan; from here the coal is conveyed in trucks to the rotating drum *a*, into which one truck at a time is run; the drum is then set in motion and stops automatically after it has made one revolution, by which the truck is emptied and the coal has been placed on the roller screen *b*, an arrangement patented by the makers. It consists of a square iron frame, supported by two iron girders; in the frame are placed longitudinally flat iron bars, while at right angles to these and below are placed rollers, the spaces thus formed being the screening openings. The rollers, provided at one end with a chain wheel, are driven by a continuous chain. This screen is very durable, very effective, and almost entirely avoids the breaking up into small pieces of even soft coal. The pieces of above 3 in. go over this screen and drop upon the belt conveyor *c*, Cornet's type, the delivery end of which is hinged, so that it can be lifted or lowered to prevent breakage in loading the lumps direct into trucks. As the pieces pass along the conveyor they are sorted by hand, while any dust falls through the openings in the belt and is carried back to the separators. The screenings from the grate *b* fall into the store tank *d*, made sufficiently large to equalize any irregularity in the coal supply and secure continuous working. From this tank a bucket elevator lifts the small coal upon a screen *f*, which separates into small up to $\frac{3}{8}$ in., coarse from $\frac{3}{8}$ in. to $1\frac{1}{8}$ in., and nuts from $1\frac{1}{8}$ into 3 in. Upon the next two flat table screens, g^1 and g^2, further separation into the four sorts of nuts previously enumerated is carried out, while smalls under $\frac{3}{8}$ in. are here again sifted out.

From these screens the nuts, now free from dust, fall with the least possible drop into the washing machines i^1 to i^4, where minerals are sepa-

rated from the coal, and the washed coal is then conveyed by means of the sluices k^1 to k^4 to vibrating screens l, where the water and mud is separated, and they fall then into the hopper tanks m, from where they are loaded into trucks or wagons.

While for the separation of nuts flat screens are preferable to any other kind, the small coal under ⅝ in. is treated in a revolving perforated drum o, into which it is lifted by the bucket elevator n. This drum produces three sizes of grain, ¼ in., ½ in., and ⅝ in., and these are then subjected to the washing process upon the machines q^1 to q^6. Provision is made to erect three more of these fine coal-washing machines in case the percentage of small should make this necessary. The coals are now run into the settling tanks r, into which is also run the wash water from the coarse grain washing machines. Out of the tanks the coal is lifted by the elevators s^1 s^2, provided with perforated buckets for the purpose of draining off the water. The coal is conveyed to drying towers B^1 B^2, and it is here distributed into the different departments by means of the belt conveyors t^1 t^2 t^3. When the plant is in continuous working, two or three of the large tanks should always be full, so as to allow the coal to dry sufficiently before coking; the percentage of water most suitable at these works being 10 to 12%. C represents a staging with rails upon which the coal is carried from the tanks to the coke ovens in trucks, or it can also here be at once loaded into railway trucks.

The mineral substances, separated from the coal in the coarse grain washing machines, contain no coal, and are at once discharged by means of elevator v and conveyor u into the tank w. Those from the fine coal washing machines, which still contain many particles of coal, are again washed upon the machine Z, where also pyrites, if it is desirable, can be separated, and the minerals then also go to the tank w, from where they are lifted by the bucket elevator a^1, discharged into tank b^1, and from here run away in trucks.

The water from tank r flows back to the pump c^1, while the water from the minerals is first run into large settling tanks D, owing to the quantity of clay in suspension; but after this has settled, this water is also pumped back to the washing machines, so as to reduce the water consumption to a minimum.

For driving the whole plant three steam engines are provided; the engine shown at d^1 works the drum a, the roller screen and the conveyor, so that this department can be worked independently of the washing machinery. The engine f^1 works the draining elevators and the belt conveyors in the tank tower, this part of the work having to be kept going after the washing is finished and until all the small coal is lifted out of bank r, as otherwise the elevators would become stuck. All the rest of the work is driven by the engine l^1.

The results of working so far have been:

	Per cent.
Lump coal above 3 in.	9.8
Nuts No. 1, 1¾ in. to 3 in.	4.9
" " 2, 1⅛ in. to 1¾ in.	6.8
" " 3, ½ in. to 1⅛ in.	8.8
" " 4, ⅜ in. to ⅝ in.	8.8
Coking coal under ⅜ in.	50
Minerals and coal sludge	10.9
	100.0

The conditions of the contract for the erection of these works were that the washed coking coal should not contain more than 6% of ashes, and that the water consumption should not exceed 12 per cent. Carefully made observations and analyses have shown that the average percentage of ash is 5·6% and the water consumption 11%, while the coal from the pit contains 13% of mineral admixture. The total cost of these works, including buildings, all ironwork, coke towers, and the erection complete for starting work, amounted to $60,000,

Owing to a carefully worked-out disposition of all parts, substantial and readily accessible buildings, and the adoption of the most suitable machinery, the number of men required for the machines, various apparatus, and the drying towers, is only three; for sorting and loading the lump coal, five; for loading nuts, two, and for discharging minerals, one; or a total of 11 men.

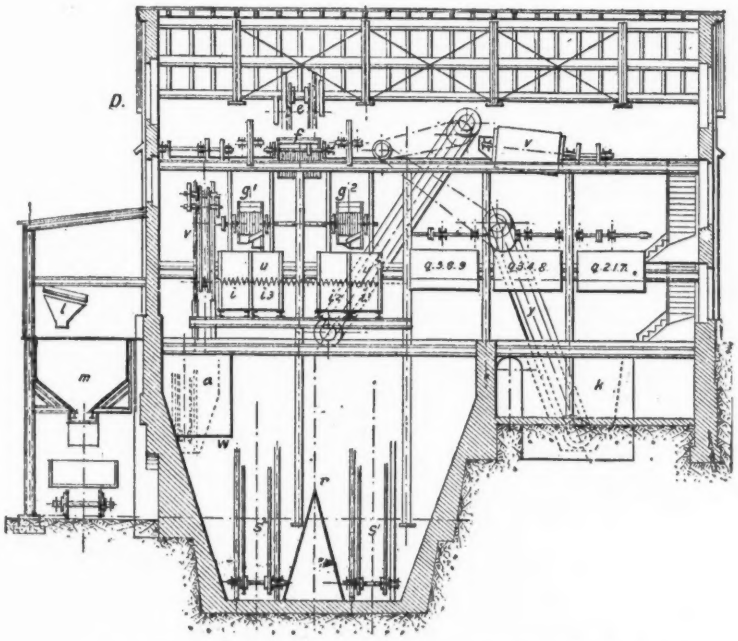


FIG. 3.—SECTION *C D*. COAL WASHING PLANT AT ZOLLERN.

In conclusion we should mention that Messrs. Schüchtermann and Kremer, the architects of the plant, of Dortmund, are represented in England by Messrs. Elsner & Co., Limited, of 31 Lombard street, London,

THE MINES AND MILLS IN PRIBRAM IN BOHEMIA.—IV.

Written for the Engineering and Mining Journal by John W. Meier.

FINE CONCENTRATION, SANDS AND SLIMES.

This is done in the different Pochwerks (stamp mills), offering great inducements for study. Although in arrangement of jig houses in their systems of culling and crushing every care is taken to make as little fines as possible, the amount is nevertheless very large. The nature of the ores treated, carrying galena, gray copper, ruby silver and zincblende, will explain this sufficiently to the mill man, and will also show him, to his satisfaction I hope, that notwithstanding intelligent management, careful experimenting, low wages and much money to draw on, it still remains impossible to avoid large losses in treatment of slimes. The superintendents of concentration at Pribram (formerly Mr. Habermann), now Mr. C. von Reytt have added to the literature of the subject by articles written for scientific journals.

There are large catch-pots, or settling basins, at the different concentrators, and the practice is to dig out the fines and wheel them to the machines or tables, where they are to be dressed by cheap labor (they have an abundance of it). This system is commendable, for it gives an opportunity to the millman to add just so much water in the mixing boxes or automatic feeders as he requires to make a pulp of proper thickness. These feeders are made in various ways, and are mostly of a very simple construction, while some are quite ingenious.

Feeders used with the Salzburg percussion table are shown in Fig. 12, and also in Von Reytt's paper in *Berg und Huttenmaennische's Jahrbuch XXXIII.*, 3). One variety consists of a wooden box in which a paddle wheel revolves at speed of 30 revolutions per minute. The paddle wheel has six radial paddles, each of them being made of three pieces of round iron 400 mm. long, driven into a wooden axle, and pieces of wire netting measuring 500 mm. by 120 mm., and meshes 16 mm. in the clear are riveted crossway to the iron arms. The diameter of the wheel is 990 mm. The water and slimes are churned together by this wheel and pulp is delivered over the bridge.

Another feeder (see Fig. 13) for dryer silimes is used, having a wooden axle into which 24 wrought iron pins (each 40 cc. long) are screwed radially. These pins are set to form a screw line. The box is covered and the paddle revolves 48 times per minute.

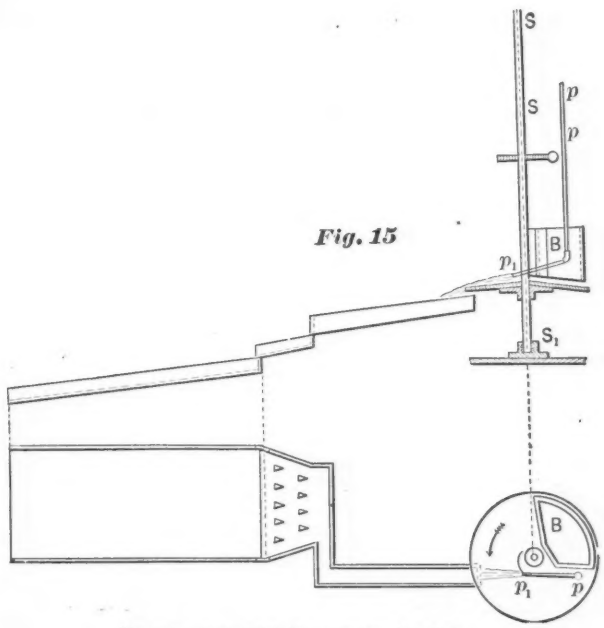
A third kind of feeder (see Fig. 14) has a cast iron box. The wheel has a wrought iron axle on which two cast iron flanges are keyed and which runs from 16 to 24 revolutions per minute. Wrought iron bars into which a number of pins are inserted are attached to the periphery of these flanges and are parallel to the center shaft. The diameter from point to point of the pins is 700 mm. This paddle wheel is suitable for all kinds of slimes.

A fourth one used with Rittinger tables at Bohutin is not quite so simple, but is ingenious (see Fig. 15). The fine sands are shoveled in a partially dried condition into a box B, which is suspended a few cm. above the surface of a conical revolving table t, the latter being keyed to a vertical shaft s s, which receives a revolving motion from a worm gear. As the table revolves in the direction of the arrow, a thin layer of sand is spread over its surface, and, when this reaches a point opposite the nozzle p, of the pipe p, a jet of water washes continually a small amount of sand into the launder leading to a Rittinger table. The feed is automatic and pulp of proper thickness can be produced. The speed of table is about one revolution in two or three minutes.

A variety of tables and apparatus are used, the following being the principal ones:

The Rittinger tables are so well known as to require no description Experiments in covering them with gum, marble and glass have been made, and all these materials have been rejected, the managers coming

Fig. 15



FEEDER FOR THE RITTINGER TABLE.

back to plain wood. A few of them are left at Bohutin, and with the feeders described they work very well and regularly, produce clean galena, but the tailings are not clean and much retreatment of middlings is required; so they are not in favor. At Bohutin each table treats as high as 1,000 kilos in 10 hours. The speed is 250 to 280 revolutions; 10 to 15 litres of water is required per minute. The stroke is 2½ to 3 cm.

The Linkenbach table is a conical stationary table with a diameter of 7 metres, a pitch 5° 15′ and is covered with a coat of cement. The sprinkling pipes and launders revolve. This has been used successfully. It is also well known. The rotary table, diameter 5·5 metres, with cone pitching 7°, made of wood, covered with a coat of cement, is also well known.

The Salzburg percussion table (*Stossherd*, Fig. 16, is a great favorite on account of its successful treatment of slimes (coarser ones). A feeder is used to properly prepare and deliver the slimes. The table is ordinarily 3·8 metres long, 1·5 metres wide, cam gives 70 to 80 strokes per minute. It requires 0·7 to 1·2 H. P. and 3 to 6 litres water per millimetre, but best results were obtained with 3·8 litres. The table is suspended at four points by means of chains from as many cast iron columns.

Fig. 12

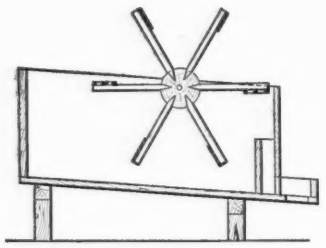


Fig. 13

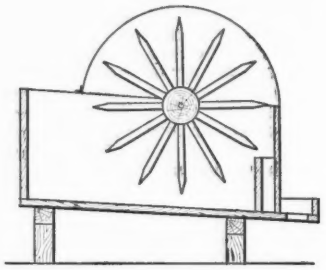
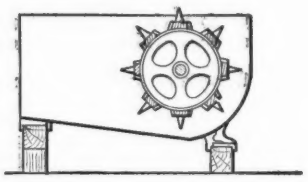
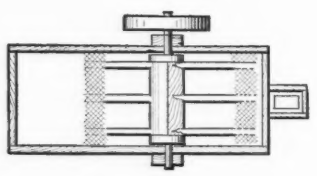
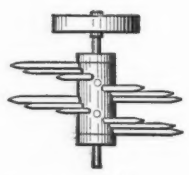
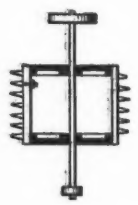


Fig. 14



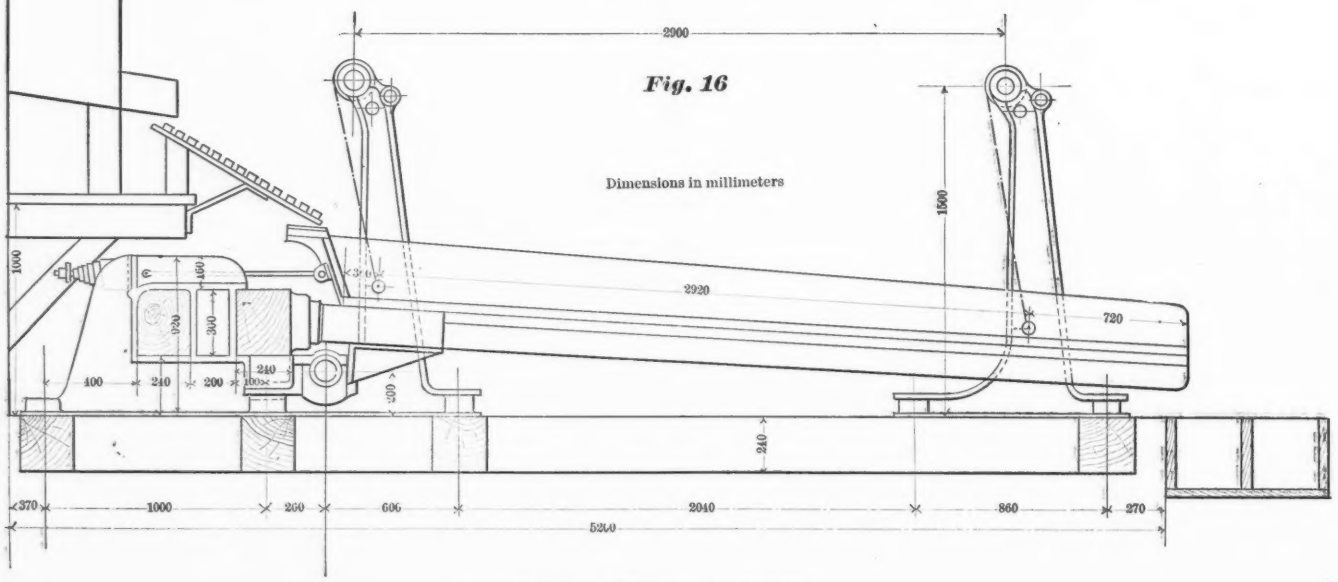






FEEDERS FOR CLIMES.

Fig. 16



SALZBURG PERCUSSION TABLES.

Therefore any desired pitch can be given to it. It is usually very slight (2°), and as layers of ore are deposited the head is raised to preserve the same pitch throughout the process. The pulp from the feeder is delivered and distributed at the head by means of a cleat board. The cam, spring buffer and bumping post are also next the head of table and below it. The table is covered with wood. Work is done in the following manner: The pulp passing between the cleats distributes itself over the head of table and the bumping causes a separation, no sprinklers are used and a deposit is gradually formed, reaching to the tail end. The workman shovels the deposit from the tail end and throws it back to the head, whereby it receives a second treatment. Finally everything is shoveled off, the middlings are heaped up separately and are given a special treatment when they have accumulated in sufficient quantity. The manual portion of this work is very much like that of the buddle.

The hand buddle (*Kehrherd*) is given the preference at present time over all other tables for treatment of the finest slimes and of intermediate products, which defy successful concentration by other methods It is 6 metres long, 1·5 metres wide, pitches from 6½° to 7½°, and is made of well jointed and smoothly planed soft or hard boards. Fig. 17 shows a double one. The pulp is fed to it at the rate of 13·6 litres a minute, and a boy with a broom keeps the top of the sediment smooth. This continues for 12 minutes ordinarily, then it is washed off with water only (20 litres per minute), no broom being used. Portions of the deposit that may not be cleaned are washed with a current of water, this being directed by the position of two cleats. The washing continues until all rich stuff, commencing at the head, has been precipitated in a clear state. Then, with additional water and the broom, the clear ore is swept off. In 20 minutes 40 kilos. of wet slimes are treated.

(To be continued.)

THE LAKE CHAMPLAIN MEETING OF THE AMERICAN INSTITUTE OF MINING ENGINEERS.

The Lake Champlain meeting advertised to begin on Tuesday evening, the 28th inst., really began on Monday evening on the Albany boat. Quite a large party of the engineers, many of them with their wives and daughters, took the night boat from New York. Others joined them at Albany and Saratoga on Tuesday morning, while still others were picked up at some of the steamer landings on Lake George and at Port Henry on Lake Champlain. The glories of these lakes have often been told in song and story, and when to their beautiful scenery we add perfect weather, and the society of "ourselves, the mining engineers," what more auspicious opening of a convention can be imagined?

On arrival at the Hotel Champlain, at Bluff Point, three miles below Plattsburgh, we were just in proper condition to apreciate its splendid appointments and the good judgment of the officers of the Institute, who postponed our meeting for a week, so that we could meet here instead of at Plattsburgh. The hotel is all that was claimed for it and more. Although it was June 28th, and we knew the friends we had left at home were suffering a hot wave, we enjoyed the pine log fire burning brightly in the fireplace in the grand hall, and taking the chill off the evening air, which on the boats had caused us to don overcoats and wraps. It reminded us of that log fire at Glen Summit last October.

It was after nine o'clock in the evening before the first session of the meeting was called to order in the large parlor of the hotel. Mr. Frank S. Witherbee made an address of welcome, in which he referred to the meeting of the Institute in this region fourteen years ago and to the changes that had taken place since that time in the iron and ore industries. President Birkinbine responded in fitting terms and then delivered his presidential address on The Influence of Location on the Pig Iron Industry, showing the remarkable changes that have taken place in the short period of five years. He presented a printed table of statistics,

which showed, among other things, that while the production of pig iron in Eastern Pennsylvania decreased in the five years, 1887–1891, 2·76%, that of the Pittsburg district increased 49·8%; that of Illinois 32·55% and that of Alabama 204·4%.

The programme for the meeting showed that it was to be chiefly not able for excursions rather than for professional sessions, all of the three days, Wednesday, Thursday and Friday being given up to excursions, and the evenings only devoted to sessions. No complaints as to this arrangement were heard, even from the old kickers, for it was generally recognized that both the season of the year and the location of the meeting were such as to render the members more disposed for recreation than for work. Wednesday's excursion was by train to Port Henry, thence by boat to Crown Point, the site of old Fort Frederic, thence by train again to Mineville, and the ore mines and separator works of Witherbees, Sherman & Co., and home by train.

The register of those present at the meeting showed 125 names on Wednesday morning, among them being the following well known old members, many of whom were accompanied by ladies. It was quite noticeable that many of the members heretofore considered young men showed evidences of advancing age by presenting at this meeting grown up daughters:

John Brikinbine, E. G. Spilsbury, R. W. Raymond, B. E. Fernow, John Thomas, Chas. B. Dudley, Wm. Thaw, Jr., N. M. Langdon, Jos. C. Platt, Thos. M. Drown, M. S. De Camp, Theo. D. Rand, J. C. Smock. J. E. Johnson, Prof. Jas. Hall, L. Holbrook, J. T. Holloway, John A. Walker, W. L. Scaife, W. G. Neilson, E. V. D'Invilliers, F. S. Witherbee, S. F. Emmons, Oliver Williams, Robt. Allison, David T. Day, B. T. Fakenthal.

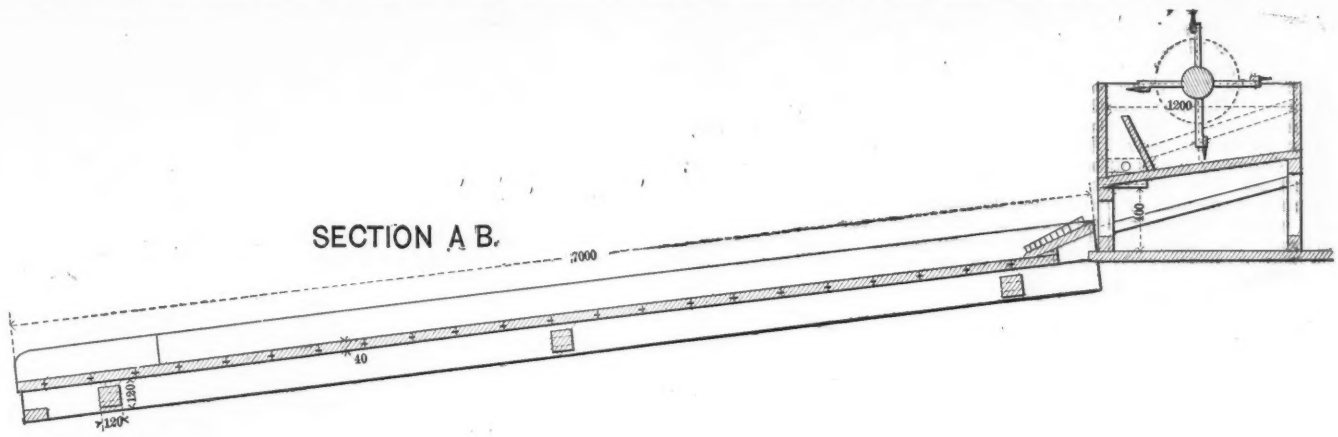
After the address Dr. Raymond read memoirs of two deceased ex-presidents of the Institute, the first on Dr. T. Sterry Hunt, prepared by Mr. James Douglas, who was associated with Dr. Hunt in the development of the Hunt and Douglas process for the treatment of copper ores. and the second on Mr. William P. Shinn, prepared by Mr. Joseph D. Weeks. Both of these memoirs were eloquent tributes to the memory of these men, whose loss the Institute so much laments, and they are well worthy of a permanent place in the Transactions. The meeting adjourned at a late hour, no professional papers being presented.

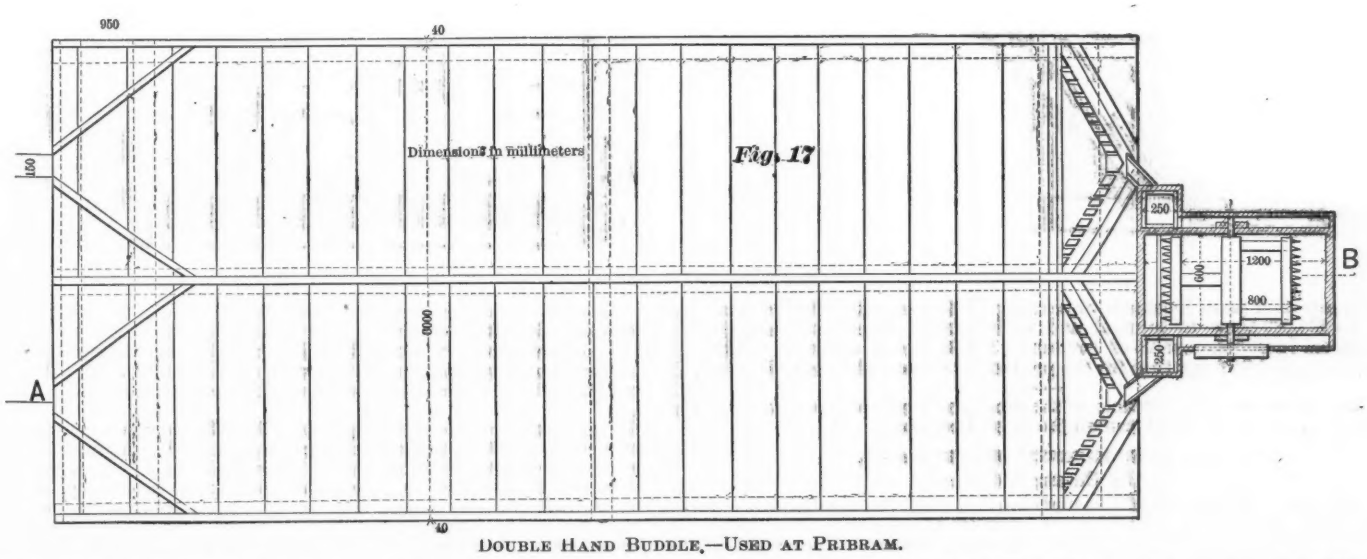
Arriving at the fort, we were shown the remains of the old French fort built in 1731, which, after two unsuccessful attempts during the French and Indian war, was captured by the Eaglish under Amherst in 1758, who thereupon built close to the site the new fort of Crown Point, at a reputed cost of £2,000,000 sterling, the ruins of which are in a comparatively good state of preservation. After a walk through these ruins the party were entertained at lunch provided by Messrs. Witherbee, Sherman & Co. and the Port Henry Iron Ore Company. After lunch we proceeded by the Lake Champlain & Mount Moriah Railroad to Mineville, seven miles distant, reaching an elevation of 1,300 ft. by three switchbacks, the railroad mounting a grade of over 200 ft. to the mile in many places. At Mineville were visited the Bessemer and non-Bessemer ore workings and hoisting plants and the Bleichert tramway at one of the mines. Many of the party went underground in two of the mines and were duly impressed with the magnitude of the workings.

At Mineville there are twenty distinct openings into the Bessemer ore bodies, known commercially as "New Bed" and "Fisher" ores; and twelve openings into the non-Bessemer ore bodies known as "Old Bed 21 Ore."

The thirty-two openings are wrought by the Port Henry Iron Ore Company and Messrs. Witherbee, Sherman & Co. Over 10,000,000 tons of iron ore have been taken from the mining operations in the vicinity of Mineville, of which 2,000,000 tons have been shipped in the last five years.

A magnetic ore separating plant was also visited, the operation of which convinced the visitors that magnetic separation has now passed beyond the experimental stage and has become a most important industry.





DOUBLE HAND BUDDLE.—USED AT PRIBRAM.

All the furnaces in the Lake Champlain region are now out of blast and considerable stocks of pig iron are on hand, but the ore mines are busy shipping ore to other points. It is expected that the furnaces will be put in blast soon, as the stocks of iron are being reduced, and it is believed that there is a little profit to be made in making pig iron even at the present low prices

The excursion did not return to the hotel till about seven o'clock, so that it was after nine o'clock before the evening session began. The first paper read was by Dr. Chas. B. Dudley, on "How a Specification for Iron and Steel Should be Made." Unfortunately the paper had not been printed in advance, and over half an hour was taken in reading it, so that there was no time allowed for discussion. The paper, however, was an excellent one, and a good contribution from one of the best authorities on the much-mooted question of iron and steel specifications.

The next paper was by Axel Sahlin, of New York, on the Granulation of Iron Ore by Means of Crushers and Rolls. This paper was printed, a few copies being on hand for distribution, but it was read nearly in full, taking up valuable time which might have been saved for discussion if the paper had been distributed in advance and read by abstract.

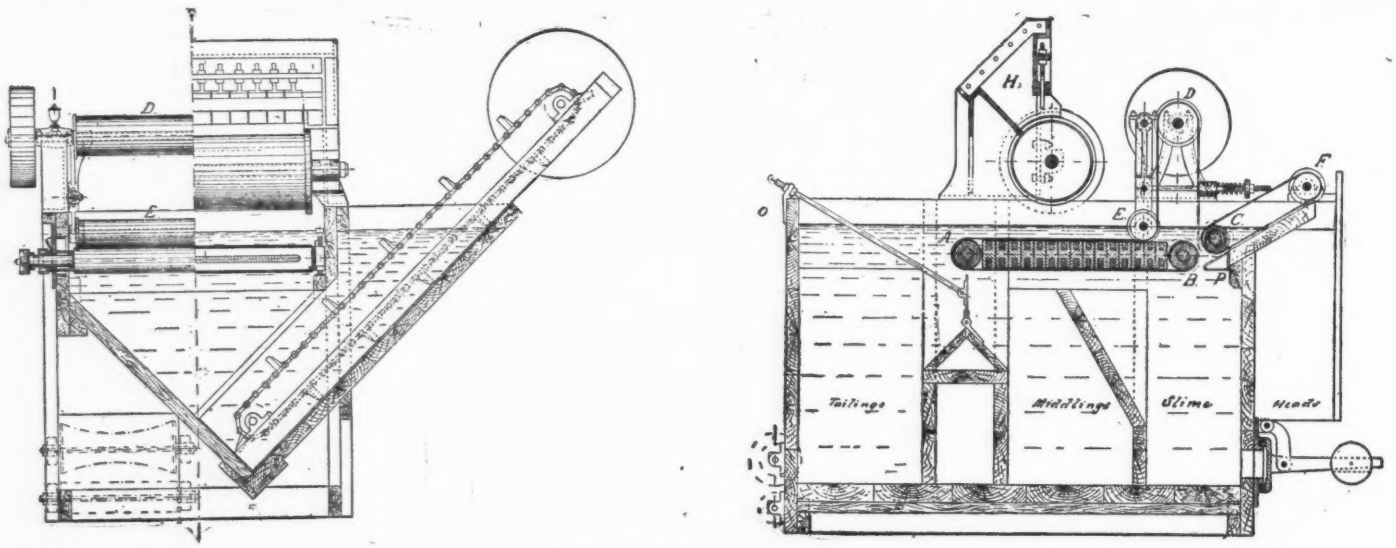
This was followed by a paper by Mr. W. R. Krom on Crushing Iron Ore for Concentration, which was read by the secretary in the author's absence. It was a vigorous attack on the papers presented by W. H. Hoffman at the Glen Summit and Baltimore meetings, which had claimed remarkable results for the Sturtevant mill as a granulator of iron ore. Mr Hoffman was present and replied to the attack by giving new facts and figures sustaining his former position, and he was ably seconded by Mr. Huxley

representing the Sturtevant mill, who presented additional data in its favor. The weight of the argument appeared to be greatly against Mr. Krom's position, and it is to be regretted that he was not present, and that no defenders of his position made themselves heard. The hour of 11 o'clock having arrived, the discussion was suspended, and the meeting adjourned.

In addition to the papers above named the following papers are in print for presentation at the meeting, and others will be read by title. "Note on a collection of Tertiary Fossil Plants from Potosi, Bolivia," by Prof. N. L. Britton, New York. "A Modern Plant for the Precipitation of Gold from Chlorine Solution by Sulphurous Acid and Hydroglen Sulphide," by Werner Langguth, of Iserlohn, Westphalia, Germany. "Magnetic Concentration at Tilley Foster," by F. H. McDowell, New York. "The Chase Magnetic Ore Separator," by Harvey S. Chase, New York. "The Control of Silicon in Pig Iron Discussion," by Messrs. B. F. Fackenthal, F. E. Bachman, W. E. C. Coxe, E. C. Pechin, Jas. Gayley and G. F. Knapp, of Mr. W. H. Morris' paper read at the Baltimore meeting.

"The Marsac Refinery, Park City, Utah," by C. A. Stetefeldt. "Copper Crystallization at the Copper Glance and Potosi Mine, Grant County, New Mexico," by Chas. H. Snow. "Note on the Use of a Mechanical Stirrer for Promoting Chemical Action in Phosphorous Determination," by Edward K. Landis. "Titaniferous Ores in the Blast Furnace," continued discussion of the paper of H. B. C. Nilze, presented at the Baltimore meeting, by B. F. Fackenthal, Jr. "The System of Filling at the Mines of the Minnesota Iron Company, Soudan, Minn.," by D. H. Bacon. "Plain versus Corrugated Belts for Vanners," by Otto F. Pfordte.

On Thursday the members visited Saranac Lake, passing Lyon mountain on the way, and returning in the evening to Bluff Point. Lyon Mountain is the mining town of the Chateaugay Ore and Iron Company, 34 miles nearly due west of Plattsburgh, containing 2,500 inhabitants. Here are located the Bessemer mines, and concentrating works of the company. The present openings have a capacity of 400,000 tons per annum and the concentrating plant is capable of treating 1,000 tons daily. The company owns 130,000 acres of mineral and timber lands hereabouts, have two charcoal furnaces, capable of producing 18,000 tons of charcoal pig iron per year, and 34 forge fires for the production of steel blooms and billets.



CHASE MAGNETIC SEPARATOR.

The following are abstracts of the more important papers read at the meeting, and those which caused the most discussion:

THE CHASE MAGNETIC ORE SEPARATOR.

By Harvey L. Chase.

The two chief features of this machine are, first the smallness of the magnetic wheels and the peculiar structure of the magnets and second the fact that it can be worked while immersed in water. The advantages of the latter characteristic are very great, for not only does the water allay the dust and wash the mineral but it also decreases the weight to be borne on the lower side of the belt.

On reference to the figure it will be seen that the machine belongs to that class in which the material is separated into three classes, tailings, middlings and heads. The material is fed from the hopper *H* onto the horizontal belt which passes to the left, round the first magnetic wheel *A*. As the material passes downward at *A* the tailings fall off into their tank. The middlings fall into the next division when the material comes opposite the row of fixed magnets above the belt.

The pure magnetite is carried around the second magnetic wheel *B*, and as it ascends it leaves this belt and is attracted by the third magnetic wheel *C* to the belt which passes round it. The ore is carried up this belt and delivered over the pulley *F* into a suitable receptacle outside the tank. As the material passes round *B* and jumps from *B* to *C*, any clinging dust and non-magnetic particles are separated from the magnetite. The pulley *D* is the driver and *E* is a tightener for the first belt.

The magnetic wheels are each made of a soft iron roll of small diameter (4 in. or less), and 3 ft. in length. In its circumference there are two spiral grooves cut like a double threaded screw. The section of the thread is about 1 in. square. In each of these grooves there is a coil of copper wire and the electric current in one goes in the opposite direction to that in the other. These opposing currents make the two screw threads into continuous helical poles of opposite polarity. The magnetic field thus made is extremely strong and the amount of material and cost of manufacture are very low. A thin brass tube is slipped over this roll to protect it. The horizontal magnetic poles are alternately north and south, and they are made by winding a soft iron yoke alternately in opposite directions, and inserting between these windings soft iron bars to form the poles; this arrangement sets up a tumbling motion in the mass of material, so that the middlings soon drop off the band. The band itself is made of cotton duck, and it endures the blows of the sharp material by yielding before it just in the same way as wax does before a sand blast. The separator is simple in its construction and build, and the only wearing parts are the bearings of the shaft and the belt.

THE GRANULATION OF IRON ORES BY MEANS OF CRUSHERS AND ROLLS.

By Axel Sahlin.

The author is of opinion that crushers and rolls are most suitable for reducing iron ores to sizes suitable for the blast furnace, on account of the regular sizes obtainable and the absence of dust, and also on account of the greater cheapness of these machines both as regards maintenance and the power required to drive them. After giving examples to prove the correctness of this opinion the author proceeds to enumerate the various items which go to make up the most efficient construction of these machines. These criticisms and suggestions are extremely interesting and useful.

The type of crusher which has the smallest number of moving parts is the original Blake. It is better practice, however, to pivot the swinging jaw below the crushing face than above it, as in the Blake; for at the upper part of the jaw a comparatively small part of the work is done, since the points of contact between the rock and the crushing jaws are then few, while as communication progresses the points of contact are multiplied, and the work is proportionately increased. The shortest stroke and the greatest leverage should therefore be at the lower part of the jaw, where the work is the heaviest. Another advantage of this arrangement would be that the variation of the opening at the bottom of the crusher would be reduced, and a more even product would be obtained Also the speed should be as great as possible, as every additional stroke per minute adds to the efficiency. The swinging jaw, in order to be as light as possible, should be made of steel, cast hollow and braced by ribs. For the crushing faces the author recommends Hadfield's steel. In a vibratory frame it is better to have a wrought metal frame and not cast steel.

Rolls must be also driven at a high speed for efficiency and a peripheral velocity of 600 to 700 ft. per minute is quite practicable. At such a speed the levers and counterweights used in the original Cornish rolls are impossible and it is better to substitute springs or eventually rubber cushions or solid breaker blocks. The springs should not bear on the main tension bolts, as in such a case considerable force would be required to adjust the rolls. It is better to inclose the springs, or, preferably, a whole nest of smaller springs, between two washers and to draw these washers so far together with special bolts that the whole bar will act as a rigid, inelastic block until the maximum working pressure is reached, when, for the first time, further compression of the springs will take place and relieve the rolls.

It is also important that the axle of the movable and rigid rolls should never become oblique under any application of strain; and it is a good arrangement to attach the movable journal boxes to a pair of strong levers firmly keyed on a heavy shaft so that any excess of strain on one journal will cause both bearings to yield uniformly. The crushing faces require more care on rolls than on crushers, because it is necessary that the space between them shall be the same for the whole of their length. Chilled iron faces are losing ground in favor of rolled or hammered steel tires. It is not advisable to split a roll into two rings, as with modern machinery tires 16 in. wide can be rolled. It is better to drive the rolls by belt than with gear, as the latter wear rapidly and allow no give in the motion of the rolls. Though both rolls should be driven so that any slip of the materials between them should be avoided, it is allowable to apply a greater amount of power to the rigid roll. In the feed regulator it is advisable to contrive some arrangement by means of adjustable scrapers in order to regulate the flow of the ore at any given point of the face of the rolls, as this is the most efficient method of keeping the tires true.

The elevators are the part of the crushing plant most subject to wear. Link chains and screw conveyors are too perishable. If vertical elevation is indispensable, belts to which elevator buckets are riveted are the best; but the most satisfactory arrangement is to employ horizontal and inclined conveyor belts traveling over concave carrying-rollers.

The screening surfaces of sizing screens should be exchangeable with a minimum of trouble. They should be reversible, as the wear is greater at the end where the ore enters the screen. Provision should be made for regulating the time during which the ore remains in the screen. The plates should be such that they will not clog up, but will afford escape for foliated crystals of mica, etc. In the author's opinion the best form is a hexagonal prismatic frame, fitted with perforated steel plates having diagonal slots; the plates can be removed without disturbing the center, and they can be reversed, and the time the ore remains in the screen can be controlled by the variation of pitch of the shaft.

SYSTEM OF FILLING AT THE MINES OF THE MINNESOTA IRON COMPANY, SOUDAN, MINN.

By D. H. Bacon.

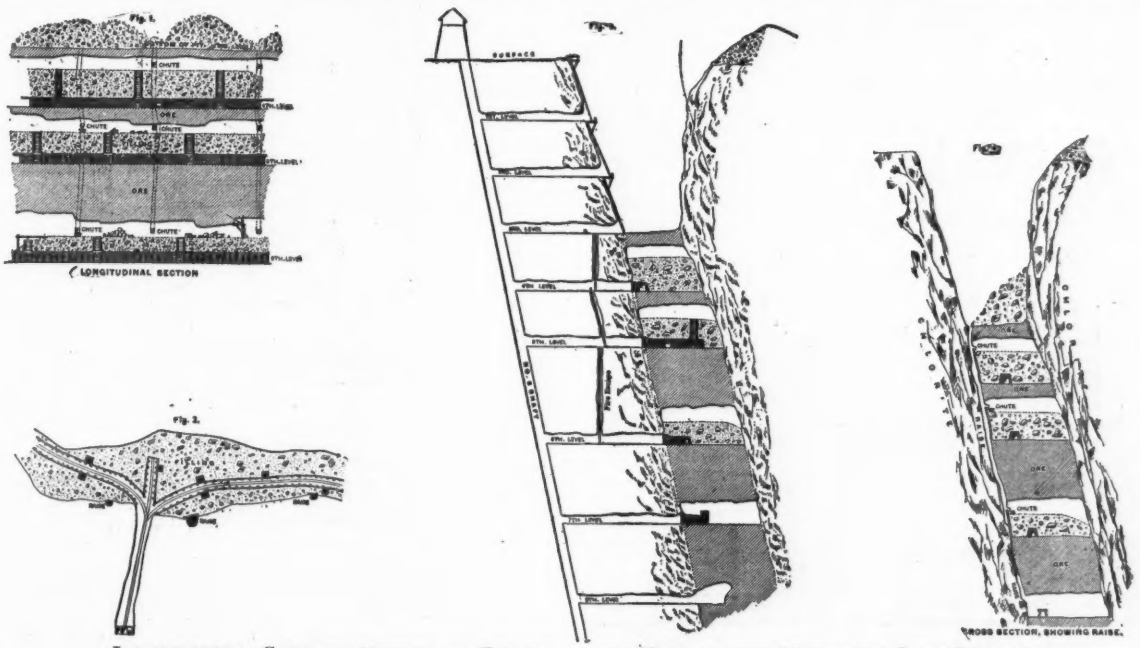
The iron ore deposits worked by the Minnesota Iron Company occur in lenses 200 to 1000 ft. long and 5 to 80 ft. wide and they stand at an angle of from 65° to 75° with a vertical height of 250 to 500 ft. Some of the deposits were at first worked as open pits, when, owing to the weakness of the walls underground mining was adopted. While the ore was being removed from the open pit shafts were in several instances sunk into the foot wall, the intention being to mine the ore with breast-stopes of an approxinate height of 20 ft. followed by under-hand stopes of the same height and to leave floors between of the necessary thickness to support the walls. As the work progressed, however, it was found that the chlorite walls were too weak to permit the working of breast-stopes 20 ft. high, as there were frequent heavy falls of ground from the hanging wall and sometimes from the foot-wall. The plan was therefore abandoned.

In seeking another system it was evident that working breast-stopes only would be too expensive and that only one-half of the ore could be removed. The method now in vogue was then proposed, viz., to sink by levels of 75 ft. and to carry in the crosscuts from the shafts, and to work out the ore each way from the shaft from the foot to hanging wall and from 15 to 20 ft. in height. Where this has been done, drift-sets consisting of caps and posts are set up the whole length of the opening and connected with the cross-cut. The necessary openings for ladder ways and chutes are timbered from the floor to a few feet above the top of the drift-sets, loose rock is run in, and the opening is filled to such a height that from 2 to 5 ft. of loose rock will be over the timber. About 10 ft. of the roof is then blasted down, broken up and thrown into the chutes, from which it is let down into the cars standing in the drift. As the stope is extended, filling is proceeded with by letting the rock in and cribbing up the chutes and ladder ways as before. It has been customary to cover the bottom with short pieces of rails, and to construct these chutes and ladder-ways of sound timber flattened at the ends and to line the sides of the chutes with planks placed vertically. Each chute is also provided with an iron spout for running ore into cars; this spout is so adjusted that it may be raised or lowered.

The rock for filling in is obtained by putting raises, either in the foot or hanging, and close to the ore, from the first level to the open pit, from the second level to the first, and so on. The raises are cribbed through the different levels, and when rock is wanted at one of the upper levels it is obtained by filling the raise below that point with rock or by inserting timber to prevent the rock from descending below the place at which it is needed, and where it is run into cars.

The accompanying illustrations show the system clearly. Fig. 1 is a longitudinal section showing the progress of the work on three levels; Fig. 2 is a plan of one of these levels near its connection with the inclined working shaft; Fig. 3 is a vertical cross section of this shaft through the cross-cuts and across the vein; Fig. 4 is a vertical cross section showing the raise on the foot-wall; and Fig. 5 is a section illustrating the construction and arrangement of the chutes.

It will be seen that by this method the expense of lowering rock is avoided, excellent ventilation is secured, and no rock-drifts or cross-cuts are required except the one communicating with the shaft at each level. Experience has shown that back-stoping is cheaper than underhand. The roof is always near and easily examined, and as the mills are seldom over 50 ft. apart, the hammers can work at a pile of ore from either side, and not delay the trimmers or stand under ground that has not been made safe. As a sure means of escape in case of fire, raises are put through from each level to the next above, as shown in Fig. 3.



ILLUSTRATIONS SHOWING METHOD OF FILLING AT THE MINES OF THE MINNESOTA IRON COMPANY.

MECHANICAL STIRRER FOR USE IN PHOSPHORUS DETERMINATIONS.

By Edward K. Landis.

The writer discovered that in the citric acid method for the determination of phosphorus in pig iron the precipitation of ammonio-magnesium phosphate was very considerably hastened by constant agitation of the solution. The apparatus he used for agitating is similar to that described by Mr. A. A. Blair in the ENGINEERING AND MINING JOURNAL of May 2d, 1891, but instead of an electromotor a small water wheel was employed as a source of motion. The method as now practiced in his laboratory for the determination of phosphorus in high-phosphorus pig irons is as follows: One gram of iron is dissolved in 30 cc. of HNO_3 (sp. gr. 1·20) in a small casserole covered with a watch glass; the contents are evaporated to dryness over a Bunsen burner, and the heat is continued for 10 minutes after all liquid has disappeared. After cooling it is taken up with HCl, boiled until dissolved, cooled and diluted to 250 cc. Of this solution 50 c. is taken, and, after the addition of some sodium acetate and NH_4OH, boiled, filtered and washed twice with hot water. While this is being done, about 10 grams of citric acid are placed in another beaker with 10–15 cc. of water and 3 cc. of HCl, and heated. The filtrate is removed from under the iron precipitate, the hot citric acid solution is poured into the beaker in which the iron precipitate was made: after washing, an empty beaker is placed under the funnel and the citric acid solution is poured through the funnel containing the iron precipitate. Solution is aided by stirring with a glass rod and when all is dissolved washing is done with hot HCl and water, and lastly with water. The solution is made slightly ammoniacal and cooled by standing in cold water; 10 cc. of magnesia in mixture (made by mixing equal parts of saturated solutions of $MgCl_2$ and NH_4Cl with enough NH_4OH to smell slightly) are added and then enough NH_4OH is added to smell very strongly; then the whole is placed under the stirrer and stirred for half an hour. The precipitate is then washed, ignited and weighed. This precipitation takes only a quarter of the time that it would if the solution were left standing by itself and the results are quite as accurate.

PLAIN VERSUS CORRUGATED BELTS FOR VANNERS.

By Otto F. Pfordte.

The author gives the results of some experiments which were conducted with the object of proving the general superiority of corrugated over plain belts for vanners. The experiments were not scientifically prepared, as is usually the case in tests of machines and processes, but they were conducted with the vanners in the everyday work for six months without specially arranging the most advantageous circumstances for the tests. The ores experimented on were silver ores, in which the amount of mineral (sulphides) varied from 5·7 to 14·5%. The results are given in some detailed tables, which we cannot reproduce here owing to lack of space. In general terms, however, we may say that taking the work of the plain belt at 100 the corrugated belt gave 146·3 in quantity of concentrates, 86·2 in assay, 125·3 total silver contents, and 67·4 in assay of tailings for the same amount of material worked.

It is probable that when both plain and corrugated belt are used in the same plant, it is best to use the corrugated belt first as it removes the great bulk of the mineral and thus permits a closer adjustment of the machinery subsequently used. Two similar machines should not be used on both the original pulp and the tailings, for the particles, of ore which escape one shape will be certain to be caught by the other. When the wear, labor, cost and interest of an extra machine, and the subsequent expenses on the product are considered it may often be the case that a single concentration comes nearest to the point of maximum economy. In that case a corrugated

belt is generally the best one to use as it produces a marketable product with the lowest tailings. But the corrugated belt must be rejected in those rare cases where the amount of silver contained in the concentrates is counterbalanced by the extra expenses due to the increased bulk. One of the advantages of the corrugated belt is that it will do cleaner work with one operation on many ores, the tailings of which produced on the plain belt are very impure or require reconcentration.

The experiments conducted by the author, though not so complete and accurate as might be desired, show that the amount of silver contained in the concentrates are one-third more than that of the plain belt with an increase in bulk of 50% or less, and they must be considered as establishing for the corrugated belt a strong claim to general superiority.

A MODERN PLANT FOR THE PRECIPITATION OF GOLD FROM CHLORINE SOLUTION BY SULPHUROUS ACID AND SULPHURETED HYDROGEN.

By Werner Langguth.

The practicability of this process as carried out at the Golden Reward Works, Deadwood, S. Dak., was discussed at some length in two communications to the ENGINEERING AND MINING JOURNAL of February 14th and March 21st, 1892. It is proposed in the present paper to give a general account of the process, and to point out the best form of plant to use for it.

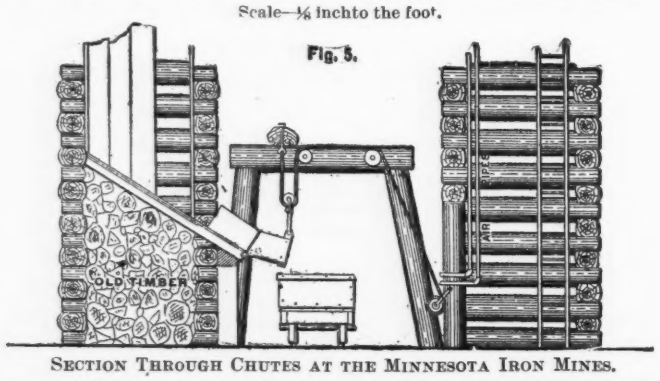
The object of the process is to precipitate the gold as sulphide from the chlorine solution by the action, first, of sulphurous acid and then sulphureted hydrogen. The sulphurous acid gets rid of the free chlorine, and the sulphureted hydrogen changes the chloride of gold to sulphide. The chlorine solution is placed in the precipitation tank shown in the illustration, and then a stream of sulphurous acid from the So_2 generator is introduced into the solution through a perforated pipe, *C*, within a few inches of the bottom. After all the chlorine has disappeared the supply of sulphurous So_2 is cut off and the current of H_2 sulphureted hydrogen is introduced through the same pipe *C* from the H_2S generator below.

The sulphide of gold is formed in flocculent form, some of which falls quickly, but the rest floats about. After the solution has stood for two hours it is led through the pipe *e* to the filter press, which retains all the sulphides suspended in the solution. The sulphide which collects at the bottom of the precipitation tank is left there for the present, and the tank is again filled with chloride solution and the precipitating process repeated. After several tanksful have been treated in this way, the precipitated chloride at the bottom of the tank is swept out through the rubber pipe *k* into the pressure tank below. After the manhole *l* has been closed, a current of compressed air is introduced through *i* in order to dry the mass of sulphides. Any of the sulphide which is blown through *h* is caught in the filter press. The sulphides suspended in the solution which have been caught in the press are dried by a current of compressed air introduced through *g*.

The sulphurous acid is made by burning sulphur in the closed generator

Scale—⅛ inch to the foot.

Fig. 5.



SECTION THROUGH CHUTES AT THE MINNESOTA IRON MINES.

through which a current of compressed air passes. The sulphureted hydrogen is generated from the action of sulphuric acid on iron matte in the presence of a current of compressed air. Just sufficient sulphuric acid is introduced into the H_2S generators at one time to supply sufficient sulphureted hydrogen for one tankful of chlorine solution.

The two generators of the pressure tank are made of boiler plate capable of withstanding an internal pressure of 150 lbs. per sq. in. The generator for sulphureted hydrogen is completely lead lined, as also are the precipitation and pressure tanks. All the pipes and other parts in which the solution comes in contact are coated with asphalt varnish. A precipitating tank with a capacity of 7,000 galls. has been found the most economical. This tank is made of 2-in. pine boards and 12 × 12 in. timber, bolted together with iron rods.

OCCURRENCE OF PYRITES IN THE CROTON MAGNETIC IRON MINES.

By W. H. Hoffman.

This paper deals with the recent discovery of magnetic and non-magnetic iron pyrites in the Croton mines. During the last year and a half the amount of sulphur in these ores have very greatly increased. Three years ago the amount of ore rejected averaged 18% and the sulphur in the remaining ore (2.85%) was roasted out at a cost of 9 cents per ton. In February of the present year, after the rejection of from 34 to 39%, the cost of roasting the ore was 13 cents per ton. Everything at present points to a further increase in sulphur and the mines have therefore been closed until a new roasting and milling plant shall have been designed.

This unfortunate increase in sulphur commenced in the autumn of 1891. After a great blast at the Theall side of the mines the writer noticed that at least one-third of the ore was largely impregnated with pyrites, and in addition fully 15% of the blast was composed of irregular lumps of magnetic pyrites. Another blast shortly afterward gave even more surprising results. The whole cross section it exposed was thickly interspersed with layers of magnetic pyrites and besides all of the ore carried much more than the usual amount of sulphur in the non-magnetic pyrites. One hundred and fifty-five tons of the ore showed 45% of iron to 23½% of sulphur, while the remainder showed 33% of iron to 6¾% of sulphur.

The ores richest in iron have also the greatest percentage of sulphur. The 37% crude ore now usually carries over 6% of sulphur, and any crude ore containing over 40% in metallic iron shows 8 to 10% of sulphur. The sulphur in the magnetic pyrrhotite has more than doubled since the concentrating plant was first laid down. These deposits are different from any other of their kind and show the greatest irregularity possible. There are very few other places in the world where there is so much sulphur in magnetic combination distributed so universally through the main bed of iron ore.

A COLLECTION OF TERTIARY FOSSIL PLANTS FROM POTOSI, BOLIVIA.

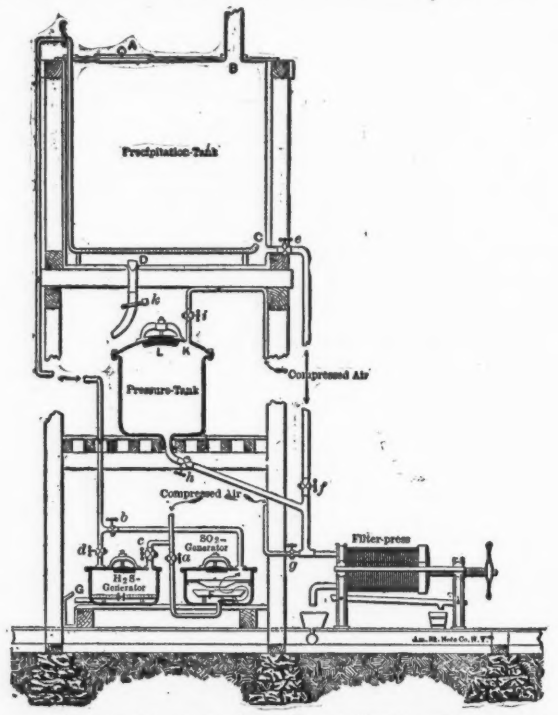
By N. L. Britton.

A detailed account of this district is given by Dr. Wendt in the Transactions of the Institute (XIX., 74-103, 1890), but he described the strata in which the plant remains were found as fine grained sandstones. On microscopical examination, however, it appears that they are composed of a volcanic glass and that the deposit was formed of fine dust, pumiceous in character and watersoaked; the glass also has suffered some dentrification from decay.

MAGNETIC CONCENTRATION AT HTE TILLY FOSTER MINE.

By F. H. McDowell.

This paper is a supplementary note to the author's communication on this subject at a recent meeting of the Institute. During 1891 the circumstances under which the magnetic separator worked at this mine were



PLANT FOR PRECIPITATION OF GOLD FROM CHLORIDE SOLUTION.

rendered much more disadvantageous than in 1890, and yet the cost per ton of concentrates has been reduced from $2.10 in 1890 to $1.99 in 1891. The difficulties met with were as follows: The richer portion of the lean ore dump became exhausted in 1890, and the portion worked in 1891 was of an inferior quality; secondly, the tailings had accumulated close about the mill to such an extent that arrangements had to be made for moving them further away; and, thirdly, a prolonged drought exhausted the reservoir, which was the source of the water supply. These difficulties were overcome very ingeniously. The water was obtained from a small stream, and by means of a pumping back system a daily flow of 12,000 gallons was made to do duty for 240,000 gallons, the amount required at the mill in 10 hours.

COPPER CRYSTALLIZATIONS IN THE FORM OF AZURITE.

By Charles H. Snow.

In the *American Journal of Science*, 1889, Mr. B. S. Yeates described some interesting crystals obtained from Grant County, N. Mex., They had the same crystalline form as azurite and occurred in masses varying from 1 oz. to 70 lbs. Though they had the appearance of native copper, they were found to consist of particles of a clay intimately mixed with particles of native copper. The present author in this paper describes some specimens of the same crystals which he obtained from the Copper Glance and Potosi mine, New Mexico, and offers an explanation of their occurrence. It seems probable that a solution containing copper, which was very likely derived from an eruptive dike next to the copper vein, primarily occupied the vein-space together with the clay, which the solution assisted in rendering soft and plastic. The copper seems next to have been gathered or deposited throughout the clay as azurite; and then, through some agency, such as gases from below, the water and carbonic acid of the azurite were expelled, leaving lumps of porous native copper which retained the form of azurite. The still soft clay was now pressed into the native-copper sponge, which acquired thereby the compact appearance, but not the weight of metallic copper, while retaining the form of the azurite crystals.

RECENT DECISIONS AFFECTING THE MINING INDUSTRY.

Secretary of the Interior.

COAL-LAND—DISCOVERY—DECLARATORY STATEMENT—TRANSFEREE—MINERAL-LAND EXCEPTIONS OF DAKOTA LAND GRANT.

Cases.—Validity of application to purchase as coal-land under act of March 3, 1873 (17 R. S. U. S. 607), certain lands within the limits of Rapid City, Dakota.

1. A coal declaratory statement under Sec. 2,349, R. S. U. S., is void, if prior thereto no discovery of coal has been made in the land covered thereby.

2. An application to purchase coal-land cannot be allowed where it appears to be made in the interest of another who has already exhausted his rights under the law authorizing the sale of such land.

3. Sections 16 and 36 (25 Stat. 676) were granted to Dakota on her admission to the Union as a State, and by the terms thereof mineral land was excepted from the grant.—MCGILLICUDY *et al. v.* TOMPKINS *et al.*—[Decided June 14, 1892.]

MINING CLAIM—ADVERSE PROCEEDINGS—JUDICIAL ORDER—MINERAL LAW CONSTRUCTION—DUTY AND AUTHORITY OF LAND COMMISSIONERS AS TO ENTRIES AND PATENTS.

1. A decree of Court in adverse proceedings determines the right of possession as between the parties but does not deprive the Land Department of the requisite authority to ascertain whether there has been due compliance with law, and the land is of the character claimed by the mineral applicant.

2. A judgment of a court that placer-ground may be entered as a lode, or that known lodes may be entered as placer-ground, subject only to the right of the lode-claimants to the possession of veins beneath the surface, is in conflict with the mineral laws and will not be held as conclusive upon the Department.

3. The law vests in the Land Commissioner the authority and duty of seeing to it that the requirements of law relative to entries and granting of patents thereunder shall have been complied with before the issuance of patent. The usual result following a favorable judgment in a court under Sec. 2,326, R. S. U. S., is the issue of patent in due time, but in such case the patent is issued by you, not on the judgment of the court above, but is upon your judgment pursuant to that of the court and on certain evidence supplemented to that furnished by the judgment-roll.

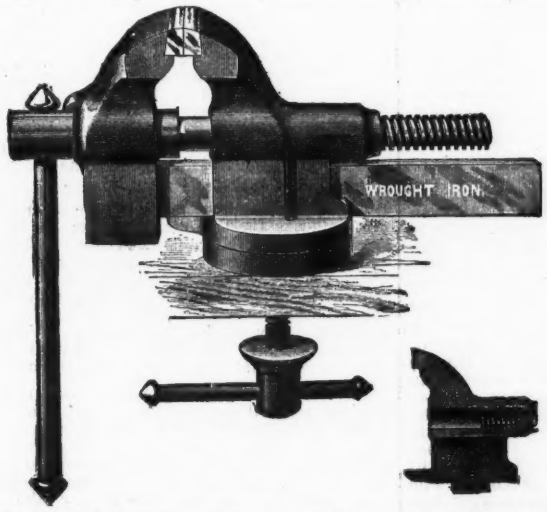
4. The judgment determines the question as to the right of possession, and when it has determined which of the parties-litigant is entitled to possession, its office is ended, but the right to a patent is not yet established. The successful litigant must prove by report of the Surveyor-General that sufficient improvements have been made on the claim, and the Land Commissioner may further investigate the character of the land. —*Apple-Blossom Placer v. Cora Lee Lode.*—[Decided June 14th, 1892.]

MINING CLAIM—PLACER PATENT-KNOWN LODE.

A patent for a placer claim passes the title to all lodes or veins contained therein, if they are not known to exist at the date of the placer application.—*In Re the Maggie Lode* (Summit Valley Mining District, Mont.). – [Decision, June 17th, 1892].

MERRILL'S PARALLEL SWIVEL VISE.

Merrill Brothers, of Brooklyn, N. Y., have designed a vise which has the following features to recommend it: It is particularly adapted for foundry work in the chipping room, as the jaws are made very heavy and will not break from a hammer stroke; the screw is large and the threads are square cut. The threaded part of the box in each size of vise is as long as the jaws are wide, thus securing great durability. The



wrought iron bar below the screw is planed and closely fits the pocket in each jaw. The jaws are steel and arranged to be easily removed, should they become injured or worn, and a new jaw substituted at any time. This tool is arranged upon a swivel base, so that it may be turned in any desired direction and held at any point by the threaded clamp upon the under side of the bench. The vise is made in different sizes: the smallest size has an opening between the jaws of 8 in. and intermediate sizes run up to 12 in. The weight varies from 63 lbs. to 165 lbs. The small size sells for $11; the large size, $22.

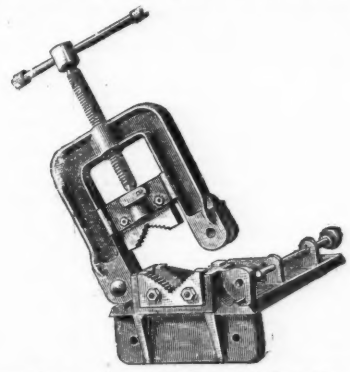
Solid Matter in the Air.—Two facts mentioned by Mr. Valon in his presidential address to the Incorporated Gas Institute of England bring out the undesirability of bituminous coal for combustion in cities. By an ingenious apparatus lately invented it has been shown that in Glasgow on a wet morning there are 7,500,000 dust particles in a cubic inch of air. It is calculated that in London nearly 100,000 tons of sulphur are produced annually by coal consumption and thrown into the air.

CLIMAX WRENCH AND HINGED PIPE VISE.

The Paragon Manufacturing Company, of this city, has recently designed a new alligator wrench, which is shown in the accompanying illustration. The wrench is provided with adjustable jaws which have bear-

ings upon turned steel balls, and they are also provided with spiral springs at the ends, so that the jaws are self-adjusting and quick in action. The movable jaw prevents crushing, allows grasping the pipe quickly and firmly. Teeth are cut in each jaw opposite those in the other. They are made in sizes for pipe from ¼ in. two 2 in. in diameter.

The hinged pipe vise shown in the illustration is also manufactured by this company. The vise is similar to the ordinary pipe vise, except that it is hinged at one side, thus removing the necessity of pulling a long pipe through the vise or carrying it back to adjust it. The frame of the vise is hinged at one side and is held in place on the other by means of a bolt.



The vise has a flange in front provided with bolt holes. This is another feature which makes the vise particularly adapted for general work. By means of this flange the vise may be set upon a post or on a beam. It is also provided with bolt holes in the base plate. The vise is made in three sizes and will accommodate pipe from ⅛ in. to 3 in. in diameter. They range in price from $8 to $18, according to size.

DIVIDENDS PAID BY MINING COMPANIES DURING JUNE AND FROM JANUARY 1ST, 1892.

NAME OF COMPANY.	Paid in June.	Paid since Jan. 1st.	NAME OF COMPANY.	Paid in June.	Paid since Jan. 1st.
Adams, Colo.	.....	$7,500	Helena & Frisco, Mont	.....	$20,000
Alaska, Tr'dw'll, Alaska	.....	150,000	Homestake, S. Dak.	$12,500	75,000
American Coal, Md.	.....	45,000	Horn Silver, Utah.	.....	50,000
American-Nettie, Colo.	.....	30,000	Idaho, Cal.	6.200	15.500
Argyle, Colo.	.....	20,000	Iron Mountain, Mont.	.....	15,000
Aspen, Colo.	$20,000	40.000	Kennedy, Cal.	15,000	45,000
Aurora, Mich.	100,000	100,000	Lake Superior, Mich.	.....	252,000
Bald Butte, Mont.	.....	20,000	Leadville Cons., Colo.	.....	12,500
Bannister, Mont.	.....	6,000	Lexington, Colo.	3,000	21,000
Belden Mica, N. H.	.....	5,000	Maid of Erin, Colo.	.....	139.725
Best Friead, Colo	.....	20,000	Maryland Coal, Md.	.....	42,000
Brotherton, Mich.	.....	40,000	Maxfield, Utah.	.....	18.000
Bull Domingo, Colo	.....	4,000	Minnesota Iron, Minn	.....	420,0 0
Bulwer Con., Cal.	.....	10,000	Mollie Gibson, Colo.	150,000	800,000
Buxton, S. Dak	.....	20,000	Monitor, S. Dak.	.....	22,500
Calumet & Hecla, Mich.	500,000	1,000,000	Morning Star D., Cal.	7,200	39 600
Centennial-Eureka, Utah.	15,000	75,000	Napa. Cal.	.....	30,000
Champion, Cal.	3,400	37,400	New Guston, Colo.	.....	82.500
Colorado Central, Colo.	.....	27,500	Omaha, Cal.	.....	7,200
Consolidation Coal, Md.	.....	205,000	Ontario, Utah	75,0 0	450,000
Colorado Fuel	.....	67,120	Osceola, Mich.	.....	50,000
Cook's Peak, Colo.	100,000	300,000	Pacific Coast Borax.	15,000	90,000
Cortez, Nev.	.....	95,000	Pandora, Mont	.....	3,000
Daly, Utah.	37,500	225,000	Parrott, Mont.	18,000	108,000
Deadwood Terra, S. Dak.	10,000	60,000	Plumas, Eureka, Cal.	.....	25,313
De Lamar, Idaho.	.....	192,000	Poorman, Ltd., Colo.	.....	36,450
Diamond, Kyune & Castle, Utah	.....	7,500	Quincy, Mich.	.....	200,000
Elkhorn, Mont	.....	175,000	Rescue, S. N., Mex.	.....	12,000
Enterprise, Colo.	87,500	150,000	Rialto, Colo.	.....	18,000
Eureka Con., Nev.	50,000	12,500	R'ky Fork Coal, Mont.	.....	100,000
Farncomb Hill, Colo.	.....	10,000	Running Lode, Colo.	.....	6,000
Franklin, Mich.	.....	80,000	Sierre Butte, Cal.	.....	14,700
Golden Reward, S. Dak.	5,000	25,000	Standard, Cal.	.....	20,000
GraniteMountain, Mont.	80,000	420,000	Tamarack, Mich	200,000	400,000
Great Western Quicksilver, Cal.	12,500	62,500	United Verde, Ariz.	.....	30,000
Hecla Con., Mont.	15,000	90,000	W. Y. O. D., Cal.	3,000	18,000
			Yosemite No. 2, Utah.	.....	5,000
			Total.	1.530.800	7,528,00 8

PATENTS GRANTED BY THE UNITED STATES PATENT OFFICE.

The following is a list of the patents relating to mining, metallurgy and kindred subjects issued by the United States Patent Office:

TUESDAY, JUNE 28TH, 1892.

477,792. Furnace for Alloying Metals. William A. Baldwin, New York, N. Y.
477,821. Rolling Mill. John A. Potter, Munhall, Pa.
477,827. Dredging Machine. Charles H. Souther, Boston, Mass.
477,899. Machine for Punching Flange Plates. Henry C. Jones, Wilmington, Del.
477,915. Brick Cutting Machine. Jacob A. Snell, Barrington, R. I.
477,933. Excavating and Shoveling Machine. Edward Hennebery, Duluth, Minn.
477,934. Ore Concentrator. Horace F. Hicks, Ashland, Ore.
477,936. Ore Concentrator. Edgar A. Hockley, Ouray, Colo., Assignor of one-half to Roselle W. Haskins, same place,
477,993, 477,994. Brick Kiln. Joseph Conley and James W. Wolfe, Tarkio, Mo.
478,067. Method of Manufacturing Nitrate of Ammonia Russell S. Penniman, Dover, N. J., Assignor of two-thirds to John C. Schrader, same place, and William C. Wood, Washington, D. C.

PERSONALS.

Sir William Thomson (Lord Kelvin) has been awarded the Helmholtz gold medal by the Berlin Academy of Sciences.

Mr. G. W. Thompson, for several years chemist with Ledoux & Co., left that concern on July 1st, becoming chemist of the National Lead Company.

The fifth general meeting of the American Chemical Society will be held at Rochester, Aug. 16th, 1892. Members are requested to send early notice of papers to be presented at the meeting.

Mr. George Attwood, mining engineer, of London, England, formerly general manager of the Montana Company, Limited, is now examining the Vermont Creek claim in the Vermont district, British Columbia.

Prof. Smock, of the Geological Survey of New Jersey, has been granted a leave of absence for three months in order to go to Holland and inspect the dikes, with a view of getting information how to protect the coast of New Jersey from the inroads of the sea.

President George B. Roberts, of the Pennsylvania Railroad Company, sailed for Europe on the 29th inst. on the steamer "City of Paris." As the vessel left port the floating equipment of the railroad company, comprising 235 vessels, displayed their flags and saluted President Roberts.

Many fathers of families throughout the mining regions will be pleased to find in the Engineering and Mining Journal the advertisements of good schools to which they can send their daughters or their sons. It will always afford the editors of the Engineering and Mining Journal pleasure to give information concerning schools to any of our subscribers who may desire it.

The steamer "Miranda" left Brooklyn on the 27th ult., having on board the members of the expedition organized by the Academy of Natural Sciences of Philadelphia, Pa., to search for the Greenland exploring party under the command of Lieut. Robert E. Peary. The steamer will proceed to St. John's, where the party will be transferred to the sealing steamer "Kite," which is scheduled to leave on July 2d for the camping grounds of the Peary party at McCormick Bay. The relief party consists of Prof. Angelo Heilprin, commander; Henry G. Bryant, first mate; N. W. Stokes, sketching artist; William G. Meehan, botanist; C. E. Hite, taxidermist; Dr. Jackson M. Mills, surgeon; Albert W. Varse and Samuel J. Entrekin.

Lord Thurlow and a party of nine Englishmen are on their way to the Black Hills in South Dakota to examine mining properties there, of which Lord Thurlow is a stockholder. The party included the following: Lord Thurlow, chairman of the board of directors, London, England; J. Thomas, a large tin producer, of Cornwall, England; Henry Claussen and J. A. Ehret, the wealthy brewers, of New York; Dr. McRay, C. Bruce, Verdin Poadi, M. Birrueger, Lewis Clay, M. Wildin and C. Thurlow. The party was met at Chicago by J. S. Childs, manager of the company's plant at Hill City, and left for that place last night over the Chicago, Burlington & Quincy in a special car. The object of the trip is to thoroughly inspect the company's property at Hill City, near which place the Harney Peak mines are situated.

Advices from ex-Gov. S. T. Hauser and B. Brown, Chairman and Secretary of the Executive Committee of the National Mining Congress, are to the effect that the second session of the congress, to be held in Helena, Mont., July 12th, next, will have an unusually large attendance from the eastern, southern, middle, western and northwestern States. Responses daily received by the Executive Committee from senators, congressmen, governors, mayors and other prominent men throughout the country, indicate a very general interest in the objects of the congress, and there are many who express the desire, regardless of immediate connection with mines or mining, to take advantage of the very low railway rates, one fare for the round trip from all points in the United States, established for the occasion, to make their first visit to the Yellowstone National Park and see the other wonders and surprises to be encountered in the Rocky Mountain region. The people of Helena, and indeed of the whole State of Montana, are actively preparing for a cordial reception and entertainment of convention guests this summer. The splendid new Helena Auditorium, built expressly for convention purposes, is completed, and the hotels and many of the finest private residences are making especial arrangements for the comfort and entertainment of sojourners during the session of the mining congress. The Governor of each State in the Union has the appointment of ten delegates, and the Mayor of each city and town appoints delegations proportionate to population, with at least one delegate for each town. The most interesting feature of the congress will be the drilling contest, which will last for four evenings. The Executive Committee has decided that no entrance fee will be charged contestants, while the prizes to be contended for will amount in the aggregate to about $2,500. In addition several special prizes have already been offered. Five counties in Montana have signified their intention to make entries, and there will be several teams from Colorado, two or more from Idaho, and one at least from Washington. The fact that no entrance fee will be charged will undoubtedly have the effect of drawing a large number of contestants. The prizes are the largest ever offered in a drilling contest in the northwest, and the men who will compete will be the best men with the drill and hammer in their various camps.

OBITUARY.

Elijah Lloyd, a director of the First National Bank and a rich mine owner, of Joplin, Mo., committed suicide June 25th in a shocking manner. He took a giant cartridge in his left hand, lighted the fuse with the right, placed the cartridge to his head, and when it exploded, the eop of his head and left hand were blown off. Temporary insanity is supposed to have prompted the deed.

EXPORT NOTES.

The Director of the Mint has estimated and the Secretary of the Treasury has proclaimed the values of foreign coins to be followed in estimating the value of all foreign merchandise exported to the United States on and after July 1st, 1892, expressed in any of such metallic currencies. The following changes have been made in the values of foreign coins from the circular of April 1st, 1892:

Coins.	Value, April 1, 1892.	Value, July 1, 1892.
Silver florin of Austro-Hungary	$0 32.8	$0 32.
Boliviano of Bolivia	66.5	64.9
Pesso of Central American States	66.5	64.9
Shanghai tael of China	98.2	95.8
Haikwan tael of China (Customs)	1 09.3	1 06.7
Pesso of Colombia	66	64.9
Sucre of Ecuador	66.5	64.9
Rupee of India	31.6	30.0
Silver yen of Japan	71.6	69.9
Silver dollar of Mexico	72.2	70.4
Sol of Peru	66.5	64.9
Silver rouble of Russia	53.1	51.9
Mahbub of Tripoli	60	58.5
Bolivar of Venezuela	13.3	13

In the circular the Secretary has proclaimed the value of the gold florin of Austria-Hungary at 48.2 cts. Hereafter the value of the gold florin will be used instead of the value of the silver florin in estimating the value of foreign merchandise imported from Austro-Hungary, expressed in florins. The nominal standard of Austro-Hungary is silver, but the actual money in which merchandise is purchased is paper florins, the depreciation of which is measured by the gold standard and not by the commercial value of silver florins.

WORLD'S FAIR NOTES.

The progress of shipbuilding from earliest times up to the present will be shown by an extensive exhibit which will be made by Laird Bros., the English shipbuilders, of Birkenhead.

Japan has applied for space in the World's Fair Mines and Mining Building for a mineral exhibit. It will include a fine collection of the celebrated Japanese alloys and bronze preparations.

The Baltimore & Ohio Railroad will make an exhibit at the World's Fair showing the history and development of railways from their beginning to the present time. In pursuance of this purpose it has sent a representative to London to prepare models of the chief objects of the many in the Kensington Museum relating to railways.

The women of Washington State will present six urns for decoration in the Woman's Building and the grounds at the Fair. They will be composed of gray granite, white marble, pink marble, dalmite—a greenish stone, magnasate—a blue stone, and one of pottery clay. These will be attractively ornamented with the minerals of the State, which consist of gold, silver, onyx, opal, copper, coal and iron.

Canada will make a good display of her mineral resources at the World's Fair. The Province of Ontario has determined on making a large exhibit of all the minerals found in that province, and Quebec has resolved not to be behind her sister province in this respect. Nova Scotia is also actively engaged in bringing together specimens of her richest deposits. The asbestos, mica, plumbago and phosphate deposits will form prominent features in the Quebec exhibit; while the rich nickel ores of Ontario will receive much attention from that province. The Dominion geological survey will make a very fine exhibit, which will afford facilities for studying the mineral resources of the country, on either the limited provincial basis or from the wider Dominion standpoint.

The United States Patent Office will exhibit at the World's Fair as complete a collection as possible of the models of all the important American patented inventions, with a view of showing the great advance in the several arts. Many of the desired models are not now in the possession of the Patent Office, owing to the loss by fire and to the fact that in recent years models have not generally been required. The available appropriation is not sufficient to enable the office to make the missing models, and therefore the Commissioner of Patents has issued an invitation to inventors and manufacturers to loan such models to the office, with the understanding that they will be returned and that due credit will be given in labels and catalogues. The invitation is meeting with hearty response.

INDUSTRIAL NOTES.

Will manufacturers of cellulose, or woodite, please communicate with the editor of the Engineering and Mining Journal?

The Catasauqua (Pa.) Manufacturing Company has reduced the pay of puddlers from $4 to $3.30 a ton, and the pay of other employees proportionately.

The National Rolling Mills, of the National Tube Works Company, at McKeesport, Pa., has made an arrangement with its employees, which is mutually satisfactory.

The Allentown, Pa., rolling mills management has reduced the wages of puddlers from $3.80 to $3.30 per ton, and the pay of other employees, except laborers, proportionately. Three hundred men are affected.

The Premier Steel Works, of Indianapolis, employing about 300 hands, shut down June 30th until an agreement should be reached on the wage question, the company refusing to accept the scale presented by the men.

The largest single order, it is said, ever received for reducing valves was placed on June 21st, 1892, by the Consolidated Car Heating Company, with the Mason Regulator Company, of Boston. It was for 500 locomotive reducing valves.

A telegram from Lancaster, Pa., says that the Amalgamated Association has presented a new scale to the Susquehanna and Columbia Iron Companies, asking $4 for puddling, the same price paid this year. The companies say they cannot pay this, and a strike is feared.

The managers of the Brooklyn Elevated R. R. Company met June 29th to adopt plans for the building of the Seaside & Brooklyn Bridge Elevated R. R. The capital is limited to $1,000,000 and $1,000,000 of 5% first mortgage bonds will be issued. The new road will be consolidated with the Brooklyn Elevated Road.

An order was signed by Judge Bond at Baltimore June 28th authorizing the receivers of the Richmond & Danville R. R. Company to issue receivers' certificates to an amount not exceeding $1,000,000. The money will be used to pay the operating expenses of the Richmond & Danville prior to the appointment of receivers and the car rentals and interest obligations of the leased lines.

The St. Clair Tunnel, owing to the dampness and gas, enabled the Great Western Telegraph Company to fully test the claims made by Day's "Kerite" as to its being gas and damp proof. Their cables were exclusively used at the opening of the tunnel, and recent advices report perfect insulation. The Metropolitan Telegraph & Telephone Company have placed an order to duplicate the 5,300-ft. "Kerite" cable (for use across the Hudson) recently successfully laid.

The Union Wire Rope Tramway Company, of New York, commenced proceedings in the United States Circuit Court on June 24th against William J. Rainey, of Cleveland, O., for $3,362.64. The petition alleges that in August, 1890, the company built a tramway across the Youghiogheny River at the Fort Hill mines near Dawson, Pa., and that Mr. Rainey refused to pay for it, claiming that the contract had not been filled. In December, 1890, the company sold a quantity of wire rope to Mr. Rainey, it is claimed, for which payment has not been made.

The Amalgamated Association of Iron and Steel Workers at Pittsburg, Pa., on the 25th ult. elected these officers for the ensuing year: M. M. Garland, president; J. C. Kilgallan, secretary; Stephen Madden, assistant secretary; Edward Kyle, treasurer. Three trustees of the association were to have been elected, but only two were chosen, John Pierce and John Gallagher. The delegates to the National Federation Convention are William Weihe, W. A. Carney and W. E. Hatton. William Weihe declined a re-election as president of the association.

The Western Iron Ore Association, at Cleveland, O., has adopted resolutions strongly indorsing "the action of Colonel Ludlow and Commander Heyerman for offering objections to carrying out the orders of the Lighthouse Board concerning the range lights in St. Mary's River, between Lakes Huron and Superior." It is claimed that the lights, if placed as marked, would amount to false lights, the maps used being old and incorrect. Similar action to the above was taken by the Lake Carriers' Association.

The census office has made a preliminary report on operating telephone companies during the year 1890, from which it appears that there were 53 companies in operation, being a decrease of 95 since 1880. The total investment is given at $72,341,736, an increase of $57,735,949 over 1880. Gross earnings, $16,414,583; gross expenses, $11,143,871; net earnings, $5,260,712; number of exchanges, 1,241; number of telephones and transmitters, 467,356; miles of wire, 240,412; number of employees, 8,645; number of subscribers, 227,357.

The annual meeting of the stockholders of the Bethlehem Iron Company was held in Bethlehem, Pa., on the 28th ult. Joseph Wharton and Beau-

veau Borie, of Philadelphia, and Robert H. Sayre, E. P. Wilbur, Robert P. Linderman, George H. Myers and John Fritz, of Bethlehem, were elected a board of directors for the ensuing year by a unanimous ballot of 59,000 shares. The directors immediately thereafter elected the following officers: President, Robert P. Linderman; vice-president and general manager, Robert H. Sayre, Sr.; secretary, Abraham S. Schropp; treasurer, C. O. Brunner; superintendent and chief engineer, John Fritz; assistant superintendent, Russell W. Davenport.

On and after July 1st the extensive operations in iron and steel formerly conducted under the firm names of Carnegie Bros. & Co., Limited; Carnegie, Phipps & Co., Limited; Allegheny Bessemer Steel Company, and the Keystone Bridge Company, at the Edgar Thomson furnaces, the Edgar Thomson Steel Works, Duquesne Steel Works, Homestead Steel Works, Lucy Furnaces, Keystone Bridge Works, Upper Union Mills, Lower Union Mills, Beaver Falls Mills, Scioto Ore Mines, Larimer Coke Works and Youghiogheny Coke Works will be carried on by the Carnegie Steel Company, Limited. None of the details of the transaction will be made public by the firm at present, and they will wait until the troubles at their works are settled before filing the papers of record. The capital will be $25,000,000. The company will have in its employ upward of 40,000 men.

The Chicago water tunnel was finished June 22d, and it is claimed that Chicago has now a daily supply of 320,000,000 gallons of water. The work started four years ago at what is known as the Peck Court shaft. The contract price was $1,500,000. From the shore shaft to the inside breakwater one tunnel 8 ft. in diameter was bored. From this point the waterway diverges to two 6-ft. branches. During the first 400 ft. the tunnel courses are irregular on account of the experiments made necessary by the quality of the soil. But from the 400-ft. point they follow a parallel course, the distance between them varying from 18 to 38 or 40 ft. At the government breakwater, which the tunnels reached in July, 1889, they were 18 ft. apart. On these lines they continued until a point 12,500 ft. from shore, where they again combined to form one 8-ft. bore. Shortly after this junction the engineers met a pocket of dangerous quicksand. A detour was necessary. From the 12,500 point the 8-ft. tunnel was carried in an elliptical curve 300 ft. to the north and back again to the original line 14,900 ft. from shore, the detour covering 2,400 ft. In view of this deviation the junction effected with so much precision is considered a triumph of engineering skill. The pocket of quicksand was encountered on Feb. 12th, 1892. Work from the lake head was begun at the crib, Jan. 13th, 1891. When the work was begun A. S. Artingstall was City Engineer. After him Messrs. Northway, Cooke and Clarke have been in charge. The engineers in direct control of the work have been Bernhard Feind, William A. Lydon and F. F. Hopp. Mr. Hopp is one of the present staff. He and Mr. Feind solved the problem of the big detour near the two and a half mile crib. The capacity of the new tunnel is 120,000,000 gallons daily of probably the worst water in the world, as many who have visited Chicago recently will testify.

The transmission of power and the means used are subjects that interest all those engaged in mechanical pursuits. A recent contract bearing upon this matter has recently been awarded to the Link Belt Engineering Company, of this city, by the contractors of the Hotel Netherland, located at 59th street and Fifth avenue, New York. An idea of the amount of power required to run the dynamos, elevators, fans, etc., in this building may be formed from the statement that three engines are to be employed, which will develop 800 H. P. The interesting feature regarding the installation of this power plant is that no belts are to be used in the building. Ropes are to be substituted, the length of which will be about 6,000 ft. A part of it will measure ⅞ in. in diameter and the balance 1⅜ ins. The smaller sizes will be employed between the jack shafts and dynamos, while the heavy rope will be used between the engines and jack shafts. The ropes will be carried over grooved pulleys and in some instances the laps to a pulley will number as high as 13. The ropes will run at a speed of about 4,000 ft. per minute. The tension on the ropes is adjusted automatically by means of a tension pulley which is arranged with its bearings on a track; the tension on this pulley is maintained by means of weight which automatically keeps the tension at the fixed point. Only one strand of rope is carried over the tension pulley; this strand being taken from the outside groove of the pulley driven. As the width of this pulley varies, so varies the angle of the tension wheel. The ropes are made of cotton, by an English firm. The strands are made up of fine strands of cotton which bear the stress. These strands are laid perfectly straight without twisting; around these is wound another layer of cotton which protects the inner strands from wear. These strands are then twisted together as in the form of an ordinary rope. It is stated that the wear of this rope is longer than the wear of a belt, and that the cost is about one-third that of belting. The matter of shrinkage and stretch is reduced to a minimum by use of the tension pulley, and it is claimed the arc of contact between pulley and rope is so much greater than in the case of an ordinary belt that the economy in using rope is so great as to recommend its use

MACHINERY AND SUPPLIES WANTED AT HOME AND ABROAD.

If any one wanting Machinery or supplies of any kind will notify the Engineering and Mining Journal of what he needs, his "Want" will be published in this column, and his address will be furnished to any one desiring to supply him.

Any one wishing to communicate with the parties whose wants are given in this column can obtain their address at this office.

No charge will be made for these services.

We also offer our services to foreign correspondents who desire to purchase American goods, and shall be pleased to furnish them information concerning goods of any kind, and forward them catalogues and discounts of manufacturers in each line, thus enabling the purchaser to select the most suitable articles before ordering.

All these services are rendered gratuitously in the interest of our subscribers and advertisers; the proprietors of the "Engineering and Mining Journal" are not brokers or exporters, nor have they any pecuniary interest in buying or selling goods of any kind.

Goods Wanted at Home.

2,715. A set of well-drilling tools. Florida.
2,716. 10,000 ft. 10-in. wrought iron pipe. Virginia.
2,717. A 10-H. P. marine engine. North Carolina.
2,718. Twenty-five tons 16 to 20-lb. T-rails, fit to relay, with splice plates, bolt nuts and spikes to complete the same. Virginia.
2,719. Prices on the following pipe: 1,000 ft. 10 in.; 2,500 ft. 8 in.; 6,000 ft. 6 in; and 7,000 ft. 4 in. Kentucky.
2,720. A boiler and engine, 15 to 20 H. P. North Carolina.
2,721. An engine, boiler, dynamo, feed-water heater and shafting. South Carolina.
2,722. A stand-pipe, 16 ft. diameter and 100 ft. high. Kentucky.
2,723. A 20 H. P. engine, center crank, and a 25 H. P. boiler. Arkansas.
2,724. A No. 3 planer, matcher and molder, a 24-in. resaw, a cut-off saw, a 22-in. grist mill, 20 ft. 1 15-16 in. shafting and 4 pulleys. Arkansas.
2,725. Rubber belting, 50 ft. 10 in., 4 ply; 100 ft. 8 in., 4 ply; and 50 ft. 6 in., 4 ply. Arkansas.
2,726. Machinery for grinding rice chaff; a large number of hay cutters, principally for hand power, a few for steam power. Florida.

GENERAL MINING NEWS.

ARIZONA.

Maricopa County.

(From our Special Correspondent.)

Big Bonanza Mine.—This important and valuable property is about to change hands. Messrs. Hubbard & Bowers have sold it for $900,000 to D. O. Mills and a Boston syndicate, and the transfer is expected to be made this week. The price originally fixed was $700,000, but pending its acceptance the owners raised the figure $200,000, and took out $260,000 in bullion, making really $1,160,000 the actual figure received by them. When the new company take hold developments will be pushed, large works erected, and the mine worked to its fullest capacity.

Mohave County.

A dispatch from Kingman says that "a great rush has set in to the new mining camp in this county. The new town will be called Silverado."

Gold Bug.—This gold mine, in Minnesota district, 60 miles northwest of Kingman, has been sold for $52,000. The purchasers are: W. F. Crosby, of Denver, Colo.; W. H. Leonard, of Colorado Springs, and R. I. Grant, of Arizona.

(From our Special Correspondent.)

Further particulars are to hand regarding the new discoveries 50 miles north of Kingman. The gulch wherein eight or ten veins run for over half a mile has been named Treasure Gulch, and is said to be the richest ever discovered in the territory. The veins crop out for distances ranging from 1,000 to 5,000 ft., and show pay streaks from 6 ins. to 4 ft. in width. The assays are said to run from 500 to 10,000 oz. in silver per ton, and in many instances carry several oz. in gold. Many new discoveries are being made, but the greatest difficulty is in getting experienced miners. Each new arrival prefers to prospect on his own account rather than accept $3.50 per day in wages. Two wagon roads are being built, one from Hackberry, 65 miles, the other from Kingman, 50 miles, on the Atlantic & Pacific R. R. Freight teams are in demand, rates being $30 per ton. The ore will be hauled to Kingman and shipped to the smelters at Pueblo. Colo., and Socorro, N. M. The railroad will not give western rates, so San Francisco smelters are prevented from competing, although they offer the best facilities and the lowest rates.

CALIFORNIA.

Mono County.

Bodie Consolidated Mining Company, Bodie.—At the annual meeting of the stockholders of this company on the 20th ult., 84,846 shares were represented and the following directors elected for the ensuing year: George I. Ives, L. Osborne, J. W. Kelly, A. Herman, W. H. King, Thomas Brown and H. D. Walker. Mr. Ives was chosen president, J. W. Kelly was re-elected superintendent and H. D. Walker, secretary. The company has $500 cash on hand.

Yuba County.

(From our Local Correspondent.)

Several promising claims have been made in the old town of Timbuctoo. On the Boa quartz claim considerable work has been done. About 700 lbs. of ore has been reduced at the Selby Works, and the return shows an average of $200 in gold and $50 in silver to the ton. This ledge averages from 5 to 6 ft. in width, and holds its own as depth is reached. A 20-stamp mill is to be erected, and as other claims are showing up well, it will, probably, be kept crushing ore continuously.

COLORADO.

Mineral surveys approved by the United States Surveyor General for Colorado during the week ending June 18th, 1892: Survey No. 7,452, land district Pueblo, name of claim, Low P. K., Troe K. and Lulu lodes; 7,379, Del Norte, Lucky lode; 7,402, Pueblo, Rustler and Puffer lodes; 7,249, Pueblo, Denver, Fairview, Jenny Linn, Manitou and May Bell lodes; 7,467. Del Norte, Lottie lode; 7,468, Del Norte, Matilda lode; 7,466, Central City, Orion lode; 7,465, Leadville, Etta C., Jennie D., Minnie B., Mary V., Albert G. and Melvina J. lodes; 7,430, Del Norte, Berigan, Kreutzer Sonata, Emma, Xenia, Post Master and Creedmore lodes.

Boulder County.

Orphan Boy Gold Mining Company, Copper Rock.—This company is building a new 15-stamp mill on its mill site. The Union Pacific has agreed to build a switch to the mill. The mill will be furnished and ready to run in 60 days, during which time the mines will be developed with all possible dispatch. The Emperor tunnel will be continued until the Wilhelm vein is encountered and opened up. The outcropping of the Wilhelm is very large, but so broken up that it is impossible in its present condition to form an accurate opinion regarding the width of the vein.

El Paso County.

Chat Mining Company, Cripple Creek.—This company has made a strike of free milling ore in the H. C. Chat drift, which is being driven from the 65-ft. level of the shaft. A 10-ft. vein of the ore was cut, the walls being clearly defined. This body of ore runs about $18 in gold and will be treated at the stamp mill at Cripple Creek. The company has commenced shipping ore to the Beaver Creek stamp mill for treatment, averaging about 15 tons per day.

Lake County.

The new Holden smelter at Leadville was completed on the 23d ult. The smelter will handle the low grades of ore and will prove of great benefit to the camp.

Good reports come from the Robinson district, and according to our exchanges renewed activity is noticeable in all the old properties in that section. The event of the year there was the sale last week of the Champion property to J. B. Wheeler, of Aspen and New York. The Champion was at one time a good producer, and Mr. Wheeler intends to resume work at once. In the Robinson a great deal of good work is going on; the mine is said to look well and is shipping about 50 tons daily of sulphides, making some shipments of oxide ore in addition.

Black Flag.—Work has been commenced on a large stamp mill on this mine in Mosquito district. In the Fairberry, located near this property, ore was recently uncovered, samples of which assay well.

Gordon, Leadville.—A retort weighing 45 lbs., valued at $845, was the production of three days' work on the mill. Another rich vein was opened up in the mine last week and some good ore is now being taken from it.

Lime, Leadville.—At this property, located near the Smuggler mine, a strike has been made. In the lime dolomite formation a body of ore 14 ins. thick and averaging 200 oz. of silver per ton has been opened up.

Midland Mining Company.—The Busk-Ivanhoe tunnel on the Midland is drawing rapidly to completion. Work is being carried on by a large force of men, and about 10 ft. per day are being made. On the Busk side the tunnel had penetrated to a distance of 2,700 ft. on the 19th ult., making a distance of 5,000 ft., with about 4,400 ft. more yet to finish. It is estimated that the work will be completed by Aug. 1st, 1893.

(From our Special Correspondent.)

Arnold Placer Mining Company.—Mr. Frank Luce, who is working this claim under lease, has succeeded in making a strike of fine carbonates in a shallow drift run from the shaft at the depth of 90 ft. The old drift run to the northeast at a corresponding level is to be utilized in dumping the waste dirt taken from the new drift. The streak of ore opened up recently is 7 ft. in the breast and pitches downward toward California Gulch. It was found in the lime, and no trouble is anticipated from water, as the pumping being carried on at the Bohn shaft to the west keeps the workings perfectly dry.

Equator Mining Company.—A new contract has been let by the management of the Equator to com-

plete the new tunnel to its original destination. The tunnel has now been carried in about 300 ft., but will have to be driven about 150 ft. further before the ore chute opened up in the old workings is reached from below.

Leadville Tunneling and Drainage Company.—An enterprise for the benefit of the mining industry has just been started by this company, and is to be pushed with all possible speed toward its completion. This project has been in statu quo for nearly a year, but the necessary papers were drawn up recently, and a large force of men are now at work on the tunnel. It is to be five miles in length, starting near Malta, about four miles west of Leadville, passing under the Leadville Basin and extending to the Maid of Erin shaft, making connections there 900 ft. below the surface. From thence it is to be continued into Iron, Fryer and Yankee hills, traversing the principal portion of the mineral belt in this vicinity. Between the starting point and the contemplated destination of the tunnel seven shafts are to be sunk at intervals not closer than 2,500 ft. From each of these shafts large forces of men will be engaged in working both ways, connecting with the tunnel from the next shaft, and so on. It is thought that in 18 months the blue limestone will be encountered, and the tunnel at that time will assist greatly in draining the great Leadville Basin. In two years the tunnel will have penetrated Carbonate Hill, and will then be ready to be put in operation. The tunnel is to be 6×8 ft. in the clear, and the track is to be raised above the floor sufficiently to allow room for an outflow of 15,000 gallons of water per minute. It is proposed to make as many switches and turnouts as necessary, and to run cars holding four tons each, 25 in a train. The motive power will be electricity. It is claimed for this tunnel that a total saving of $280,000 per year will be made by the owners of properties along its line in the matter of pumping and hoisting water.

Seek No Further Mining Company.—The company has taken hold of that claim and several adjoining properties in upper Iowa Gulch, and have started a new shaft from the surface. This is to be sunk to a depth sufficient to prospect the entire upper formation before drifting is commenced.

Silver Cord Mining Company.—Immediately after the completion of the long Silver Cord tunnel from California Gulch the mine resumed operations, and considerable development work has since been done at that point. As a result, a large amount of ore has been taken out and sent to the new mill, which was started simultaneously with the resumption of operations on the mine. About 50 tons per day of good concentrating ore are now being mined and treated.

Small Hopes Mining Company.—An important strike was made during the past week in this property. From the drift at the 800-ft. level, at a point 820 ft. from the main shaft, a diamond drill was sunk to a depth of 120 ft., and at that point has succeeded in opening up a fine body of sulphides, running high in silver. This body of ore lies at the second contact, and the main shaft is to be sunk 120 ft. deeper, where a drift will be driven in on the ore chute.

Pueblo County.

Colorado Coal and Iron Company.—The present situation of the steel and iron trade of the east is in marked contrast to that of the West. Mr. T. E. H. Curtis, secretary and treasurer of the Colorado Coal and Iron Company, who has just returned from Pueblo, Colo., the center of the company's operations, said to our representative this morning "that the affairs of the company are in excellent condition. The company has disposed of several million dollars' worth of its real estate during the last two years, the money received being for the most part invested in improvements on the plant at Pueblo. These improvements, which have cost us $1,500,000, were the cause of the temporary shut down last year. The present pay roll is $60,000 per month on 14 hour shifts, but in a short time we will double our working force." To the question whether Jay Gould has secured a controlling interest in the company, Mr. Curtis declined to reply, but said that the relations between the company and Mr. Gould had always been of a most pleasant nature. Mr. Curtis further reports that Mr. Berwind, the late president, has resigned, to accept the chairmanship of the board, and that Mr. Meeks has been elected president in his place. Mr. Meeks will after July 1st remain permanently at Pueblo, and all business relating to the Colorado interests will be transacted there. Mr. Steck will continue as general manager.

Saguache County.

King Solomon Mining Company, Creede.—A good strike is reported at this company's Eclat mine. The ore is said to have assayed 230 oz. in silver to the ton.

New York-Chance Mining Company, Creede.—To avoid the long litigation, heavy court expenses and the delay in working certain portions of the properties, the owners of the Last Chance and New York mines have compromised and consolidated. The owners of the Annie Rooney were bought out for $8,000 cash. The new organization will be incorporated as the New York-Chance Mining Company. The present owners of the mines who share in the combination are, on the Last Chance side, Ralph Granger, J. F. Sanders, L. Z. Dickson, H. R. and E. O. Wolcott; on the New York side, A. E. Reynolds, O. E. LeFevre, S. D. Coffin, Colin Timmons and others. The Willow Mining Company, selling the Annie Rooney, is composed of J. B. Moore, M. H. Rogers, Butler & McKinley and others.

San Miguel County.

Shipments of ore and concentrates from Telluride for the week ending June 18th have been: From Sheridan Consolidated, 31 cars; from Smuggler-Union, 35 cars; from Boomerang, 1 car; from Silver Glade, 1 car; total, 68 cars; total shipped since January 1st, 1,507 cars.

GEORGIA.

Lumpkin County.

Atlanta Gold Mining Company.—This company has been formed to work the Bertha C. mine, on the Calhoun belt. This is an old mine, only recently reopened, and it is reported that some important discoveries have been made. One prospecting shaft has been sunk 60 ft., all the way in ore of high grade.

IDAHO.

Alturas County.

Queen of the Hills Mining Company.—This mine is pumped out and about ready to turn over to the English syndicate which has agreed to purchase it. If this transfer is completed it will lead to a change of ownership of the Minnie Moore, Relief and adjacent claims, and cause a general and permanent revival of operations there, on a large scale, says the Wood River "Times."

Red Elephant.—This group is showing one ore body after another; there is enough second-class ore in sight to keep the mill going for years, and enough first-class ore to pay all expenses and leave all the second-class a clear profit, says the Wood River "Times."

Wolftone.—This mine has recently been taken hold of by John McFarlane and others, and two sets of leasers are extracting ore from it.

Bear Lake County.

Montpelier.—45,000 lbs. of ore, the first ever shipped from this county, was recently sent from this place by J. C. Rich, owner of a mine near St. Charles.

Lemhi County.

Salmon City.—A special to the Anaconda "Standard" describes what may prove to be an important discovery of copper ore. The mineral outcrops near the base of a mountain of altered nicaceous slate broken through by dykes of yellow porphyry. The ore is sulphide, with red and brown oxide, and carries gold. The developments are superficial so far, a shallow open cut sunk into the lead near the foot of the hill, that shows some rich mineral, and a 30-ft. tunnel about half way up. The face of the tunnel shows some good streaks of oxides with small kidneys of copper glance. There is also some parallel steps or headers on the foot side, lined with thick-plated crystallized azarite. There is about 10 tons of ore on the dump, the average assays of which runs $70 in copper, gold and silver.

Owyhee County.

Blaine Tunnel.—A distance of 1,212 ft. has been reached, and at present the face makes a very good showing. The ledge is about 14 ins. wide, assaying $56 in silver and $7.50 in gold.

De Lamar Mining Company.—The returns for the month of May have just been reported by the manager, and show a net profit of $40,221.80, says the Anaconda "Standard." With the company's one 30-stamp mill running it is probable that the monthly profit will not vary much for months to come, and there is but little prospect at present of more milling capacity being added. The reasons why more mills are not built vary, but the chief one is because as depth has been acquired in the mines the ore, although growing rapidly richer, cannot be worked so closely by the pan amalgamation process, and the manager will not recommend putting money into plants until he is thoroughly satisfied as to what process will produce the best results. At present the cyanide process is being thoroughly tested in Denver, where ore was shipped for that purpose.

Trade Dollar.—In all parts of the mine the rich ore deposits remain about the same and retain their characteristic value, while the new developments are equally as promising, says the Helena "Journal." At present stoping in all parts of the mine has nearly been discontinued; in tunnel No. 1 entirely so, on account of not having sufficient storage, the new ore house being now nearly full, besides a large amount of ore on the dumps. In tunnel No. 2 drifting on the ledge still continues and a distance of 820 ft. has been reached, in the face of which the ledge is 2 ft. wide, low grade milling ore averaging about $50 per ton. Tunnel No. 3 is now connected with the much talked of winze "C," where the rich shoot of ore was encountered and which extends up to No. 2, a distance of 50 ft. The vein is increasing in width and the ore in richness.

Shoshone County.

The situation in the Coeur d'Alenes is growing more critical each day. It is well known that both sides are armed. There are over 300 men at work in Bunker Hill and Sullivan, and non-union men are being brought in from Oregon and California every day. It is reliably reported that Governor Willey has laid the matter before President Harrison, and that Senator Dubois has been requested to see the President regarding the situation with a view of having troops sent to that country. Governor Willey said on June 24th that he would send Inspector General Curtis to the scene of the difficulty by Tuesday. It is reported that he has already sent out messages to captains of State militia inquiring as to the condition of troops.

INDIAN TERRITORY.

Deposits of oil are reported to have been discovered in the Cherokee country.

KANSAS.

Cherokee County.

During the week ending June 25th the output of ore from the mining districts of Galena and Empire City was: Rough ore, pounds milled, 1,913,830; rough ore, pounds sold, 1,360,870; zinc ore, pounds sold, 652,220; lead ore, pounds sold, 126,420. Sales aggregated a total value of $10,208.

MICHIGAN.

Copper.

Allouez Mining Company.—Exploration of the Allouez mineral lands is to be commenced, by the use of a diamond drill, says the Lake Superior "Democrat." Although the results of explorations of the lodes and veins of this district with a diamond drill can hardly be said to have been very satisfactory, it is to be hoped that the Allouez Company will make important discoveries. If in boring for the belt veins or lodes that evidently exist in the Allouez they should come across the Pewabic lode or any vein or lode where it should be lean, it should not be considered as a criterion of their average width or valuable importance. If, for instance, a drill had been used to test the conglomerate belt recently struck in the shaft at the Tamarack, Junior, and the drill should have pierced it at the end, where it was only 6 ins. wide, instead of the other end of the shaft, where it was 6 ft., it would have revealed a very remarkable difference, which might have been fatal to further exploring, or the enterprise.

Calumet & Hecla Mining Company.—Regular hoisting has started in Calumet No. 2 shaft. A combined shaft and rockhouse will soon be started at No. 4 shaft.

Franklin Mining Company.—The future of this mine is an interesting problem, says the Calumet "News." If it lasts more than two years it will be a surprise. It is so fixed, though, that its windup will be a creditable one, and in its last days it will produce copper as cheap if not cheaper than before. The surplus in the treasury may be used for two purposes—to purchase new ground to continue the life of the mine or for dividends. It would be no surprise to see President Mason, of the Quincy, step in before long and show that he had a controlling interest in the Franklin and add it to the already extensive acquisitions of his big mine. It would be of much benefit to the Quincy, as the south shaft of the Franklin goes down to the Pewabic forty border. Possession of this shaft would facilitate greatly for the Quincy the handling of the rock from the Pewabic west forty, which the Quincy lately purchased.

Quincy Mining Company.—The new rockhouse and engine house combined at the North Quincy is going up rapidly. The new boiler house will contain eight boilers, each containing 92 3½-in. flues 175 ft. long. Four of these are steamed up and the others are in place. A new hoist from E. P. Allis & Co. has arrived, and will be put into the new stone engine house which is ready for it. It resembles the hoist at Tamarack No. 2. They are doing some hoisting at this shaft now.

Tamarack, Jr.—The cross-cut west in No. 2 shaft Tamarack, Jr., has cut the lode. It is about 8 ft. wide, but carries very little copper.

Menominee Range.

Aragon Mining Company.—Drifting on the 5th level is progressing favorably, and soon a connection between Nos. 1 and 2 shafts will be made; then there will be a large quantity of ore hoisted through the latter, says the Norway "Current." The daily shipments now average about 900 tons. This week shipments were again commenced to the Joliet Steel Works, Joliet, Ill.

Ishpeming.—The Council and citizens have offered the Cleveland-Cliffs Iron Mining Company immunity from taxes for 25 years if the company will build its new furnace at that place.

Lamont & Paint River Mines.—Superintendent Scadden, who has charge of both mines, says that the weekly output is about 1,200 tons, and that about 40,000 tons will be shipped during the season, says the Norway "Current." The working force is about 30 men. A new coal dock with a capacity of 1,500 tons is being built. At the Paint River 1,000 tons a week is being shipped, but the season's output will not reach the figure of last year, because no early sales were made, and the owners did not feel disposed to stock ore during winter in the face of a slow market. The working force is almost the same as at the Lamont.

Mineral Mound Exploring Company.—This company has received a new hoist. The shaft is down a depth of 115 ft. and is in the foot wall. A drift will be run south across the formation to the hanging wall.

Penn Iron Company.—This company has shipped this year more than 120,000 tons of ore, and ship-

ments are being made very regularly. The excavating for the new machinery at East Vulcan is about finished. A Rochester drum and a wire cable is being placed with which to handle the heavy stone. The main foundation will be 51 × 60 ft., and the machinery in the house will consist of two 10-ft. drums and a Corliss engine, and the pumping machinery from the Norway pumping plant. The pumps used will be the 16-in. ones which were in the West Vulcan shaft when it was burned out. The ore body at the 6th level east is increasing in width, and at one place is 25 ft. wide. No. 1 shaft at Curry is now 650 ft. deep, the last level having been finished in the latter part of May, making more than 500 ft. of sinking done in about three years. A drift west at the 4th level has nearly reached the line of the Brier Hill property. The cross-cut north from the end of the drift east from the exploring shaft on the Brier Hill is in 70 ft., has passed through a belt of lean ore and is being driven in jasper.

MISSOURI.

Jasper County.

(From our Special Correspondent.)

Joplin, June 27.

Saturday evening closed an active week in the mines throughout the lead and zinc belt. There was a large output of ore, and the market opened at $26.50 for zinc ore, but declined in the latter part of the week, so that the average price was not over $25. Lead ore remained through the week at $23.25 per thousand. The lower levels of some of the large mines are still flooded with water, but is held in reserve for washing purposes in case of extreme dry weather. Following are the sales of ore from the different camps: Joplin mines, 1,344,990 lbs. zinc ore and 266,390 lead, value, $23,139.15; Webb City mines, 225,120 lbs. zinc ore and 100,490 lead, value $5,175; Carterville mines, 2,130,440 lbs. zinc ore and 145,840 lead, value $30,517.45; Zincite mines, 158,850 lbs. zinc ore and 1,299 lead, value $2,015.30; Oronogo mines, 42,540 lbs. lead, value $978.45; Carthage mines, 175,100 lbs. zinc ore, value $2,276; Burch Center mines, 25,550 lbs. zinc ore, value $319.35; Galena, Kan., mines, 592,260 lbs. zinc ore and 105,360 lead, value $9,045; district's total value, $73,465.70. Aurora, Lawrence County, mines, 252,000 lbs. zinc ore, 674,040 lbs. silicate and 230,000 lbs. lead, value $12,780; lead and zinc belt's total value, $86,245.70.

MINNESOTA.

Mesaba Range.

The Mesaba Range "News" gives the following figures for mining ore on that range: Stripping, per ton, 12 cts.; powder and breaking ore, 15 cts.; tramming ore to skips, 10 cts.; hoisting, 10 cts.; total cost per ton, 47 cts. When cuts of immense size are made and if steam shovels can be successfully used, as is contemplated by the Kimberly syndicate, the cost will not be near as great as these figures would indicate, says that paper, but its estimate is considered very low even under the favorable condltions of the Mesaba Range.

MONTANA.

Beaverhead County.

Polaris Mining Company.—This mine is being examined by J. E. Knapp, of New York, says the "Mining Age." A cross-cut 1,700 ft. long will tap the vein at a depth of 650. When completed the hoisting works will be removed, the ore being taken out at less expense by the tunnel.

Cascade County.

Boston & Montana Consolidated Copper and Silver Mining Company.—Bids for the brick and stone work on the new electrolytic refinery building were opened on June 20th, and the contract was let June 23d to Contractor A. Delong. In accord with the specifications the building will cost complete between $25,000 and $30,000. Work will begin right away. The contract for the machinery was let some time ago to the Thomson-Houston Company, says the Butte "Miner."

Great Falls Quarry Company. This company has completed the raising of the money, and machinery has been ordered to cost about $25,000 for a plant to manufacture fire-brick tiles, sewer pipe, paving and other fireproof materials. The building plans are complete, ground has been surveyed and stakes driven. It will be located near their clay deposits between this city and Sand Coulee, and will be of stone, two stories in height, 66 × 100, and an engine room 40 × 60.

Deer Lodge County.

Champion Gold Mining Company.—Sinking from the 600 level is still in progress and will be carried on until the 800-ft. level is reached, says the Butte "Inter-Mountain." Shoots of ore, which assay over 1,000 oz. in silver to the ton, are frequently encountered, and the owners of the property feel confident that in the near future the Champion mine will be one of the greatest in Montana. The ledge now exposed is between 2 and 3 ft. in width and is of that class of ore known as ruby silver. The richest of it is sacked at present, and a large portion of it sent to the mill at Deer Lodge. It is believed that the mill will not be removed from its present position, it being considered cheaper to build a new one close to the mine. It would cost a large amount to remove the mill, and it is believed that negotiations will be entered into in a few days for the erection of a larger mill.

Jefferson County.

Overland Consolidated Gold Mining Company.—This company, says the Helena "Daily Journal," owns a group of mines in McClellan Gulch. The names of the most promising of these leads are the Holbrook, the Overland, the Iron Era, the Goldbug, the Arthur, the Gold Bluff, the Emory and the Emory Extension. The ore in these claims is free milling gold and runs from $10 to $200 per ton. They have about 200 tons of ore on the dump at the Overland. About one-half of this is first-class and will run $60 per ton, and one-half second-class, which will run $22 per ton. There are about 40 tons of ore on the dump at the Holbrook, which will run $30 per ton.

Lewis and Clarke County.

Grand Republic Mining Company.—At the depth of 120 ft. in the Monarch mine it shows better than it did nearer the surface. There is 2 ft. of high grade galena which will average 100 oz. of silver to the ton and run well in gold, says the Helena "Daily Journal." The low grade ore will run from 12 to 40 oz., but will concentrate well. The company has put up a concentrator on the stream half way between the Monarch and the Leily, which they also own. The concentrator was started last week and worked well.

Madison County.

Silver Bell.—It is said that this mine is yielding considerable quantities of $100-ore. The vein is 18 ins. thick, but appears to increase in width with depth.

Missoula County.

Curlew.—The opening of the Curlew mine in the Bitter Root Valley, and the Iron Mountain mine in the Iron Mountain district, has had the effect of stimulating interest in mining matters, says the Helena "Daily Journal." There has been more prospecting done in Missoula County in the past two years than in the whole history of the county heretofore.

Silver Bow County.

Anderson.—This mine, located near the Parrot addition, was closed down and dismantled June 16th. The Butte & Boston Company had been developing it under a lease and bond. The shaft had reached a depth of 200 ft., and drifting was in progress when the order was given to cease operations.

Anaconda Mining Company.—The mine is now shipping 165 carloads per day. Difficulty is experienced in getting timber on account of the delays caused by washouts on the Northern Pacific.

Silver Glance Mining Company.—Articles of incorporation of the Silver Glance Mining Company were filed for record in Butte June 23d. The incorporators were Peter Rowan, George Ross, John Krodel, Charles A. Krodel and Henry H. Krodel. The capital stock of the company is 500,000 shares of the par value of $2 each, aggregating a capital stock of $1,000,000. The company is formed for the purpose of carrying on business wholly in Silver Bow County and principally in the working and developing of the Silver Glance, Scranton and the North Gold Hill mining claims, all situated in the Moose Creek district.

West Olive Branch.—The "Daily Inter-Mountain" reports an important strike at this mine. It was made at a depth of 100 ft. in cross-cutting for the main lead. The find is a vein of silver ore 12 ins. wide, assaying from 40 to 400 oz. per ton.

Winnie.—This is a claim owned by the Butte & Boston Company. It is situated on the Great Rainbow lead west of the Moulton some distance, being on the far west side of Missoula Gulch. James McGovern and James Persons secured a lease upon it, to work it to a depth of 200 ft., says the Butte "Inter-Mountain," and at a distance of 25 ft. in the shaft they cleaned $625 on ore taken out in sinking. At a depth of 50 ft. they have 6 ft. of ore, full of black sulphurets, that assays 380 oz. in silver. A small steam hoist will be put on the Winnie, and the work of developing the mine and extracting the ore will be vigorously prosecuted. Seven men are employed.

NEVADA.

Elko County.

There was shipped from Tuscarora on the 20th ult. by the Union Mill Company bullion valued at $25,000, for account of the Nevada Queen and other mines. The mill, which had been shut down several days for repairs, was started up again on the same day.

Nevada Queen Mining Company.—The official letter from this mine for the week ending June 16th says: Second level—South drift from No. 3 east cross-cut extended 12 ft. Small seams in the face of drift. North drift extended to the Commonwealth line, exposing a foot of good ore. Stopes on west vein show no material change. Stopes in the east vein, where the ore had been extracted, came together, caused by the pressure of water. The only damage was the delay, as we had to wait for the water to drain off, but are working all right now. Hoisted 546 cars second-class ore, which was sent to concentrator. Average battery assay $24.62 per ton, and 36 cars battery assay $241 per ton. Third level—South intermediate drift from No. 3 air shaft has been connected and started to open out stopes. The ore where we have started is 2 ft. wide and is of good grade.

North Belle Isle Mining Company, Tuscarora.—At the recent annual meeting of this company 79,444 shares were represented and the following officers and directors elected: E. Scott, president; F. A. Berlin, vice-president; and George W. Grayson, M. J. McDonald and Thomas Bell, directors. J. W. Pew was re-elected secretary, and his financial statement showed an overdraft of $12,828.49. During the year 410.84 tons of ore have been sent to the mill on an average assay value of $269.35 per ton. There are now extracted and on the dump 1,000 tons of second-class ore ready for the concentrator, estimated assay value $23 per ton.

Esmeralda County.

Mount Diablo Mining Company.—According to the San Francisco "Post" work on this company's mine and mill will be resumed very shortly. It is expected that the Holmes Company will also resume work soon after the Mount Diablo.

Lyons County.

The Carson River dredge at Dayton ran regularly last week, says the San Francisco "Post" of the 22d ult., showing some rich sulphurets. The amalgamator showed that it can catch considerable quicksilver and amalgam.

Storey County—Comstock Lode.

Challenge Consolidated and Confidence.—The joint Confidence and Challenge north drift on the 200 level is in 1,168 ft. from the Yellow Jacket shaft. The face shows porphyry and quartz of no value. The joint Confidence and Challenge west cross-cut from the north drift on the same level is being repaired. Some fair ore is still being taken out from old fillings and small streaks found on the upper levels, which is being shipped to the Brunswick mill for reduction.

Overman Mining Company.—The latest official weekly letter states that there were extracted from the 1,100 and 1,200 levels 41 tons and 1,750 lbs. of ore. Car sample assays averaged $19.39 per ton. Shipped to the Brunswick mill 131 tons and 200 lbs. of ore. They have 2½ ft. of fair grade ore in the face of the northwest drift from the incline upraise on the 1,200 level.

(From our Special Correspondent.)

The following is the weekly statement of ore hoisted from Comstock mines and milled, with the car samples and battery assays, etc.:

Mine.	Tons hoisted.	Car sample assay.	Tons milled.	Average bat. assay.	Bullion product for week.	Bullion shipped.
		$		$	$	$
Con., Cal. & Va..	1,034	34.61	980	23.38	....	†18,892.09
" "	.....	.....	*223	23.89	....	119.930
						§17,034.22
Hale & Norcross....	§202	18.14	368	15.70	....	¶314
Occidental	175	....	175	23.85	....	....
Potosi.....	427	26.40	428	25.84	....	....
Savage.....	§600	22.01	525	19.	6,700	9,570.45
Overman.....	4	19.39	131	....	....	....
Yellow Jacket.....	.....	**	**	....	....	....

* Worked at Vivian Mill.
† Shipped to Carson.
‡ Shipped to S. F.
§ Cars.
¶ Crude bullion.
** No report.

Hale & Norcross Silver Mining Company.—For some months past "Jim" Flood has, by permission of the Mining Stock Association, controlled this property, and assumed rule under the guise of a reformer. For a time all was eager expectation, and the good times coming were supposed to be close at hand. Nothing very favorable developing, a tiny little bit of suspicion began to make itself felt that "Jim the Reformer" was not living up to his pledges. Later, when the report was current that Alvinza Hayward, of unsavory memory, desired to wrest control of the Savage from his hands, he—metaphorically—fell upon the neck of the elder reformer—for Hayward is also filling the role just now and is agitating competing railroad facilities for California—and announced that he was his dear friend, and if he wanted Savage or any other mine he could have it; such a trifle would not be made to stand in the way of their friendship. This was reform with a vengeance, and the street wondered. To cap the climax, Flood has kicked down the ladder by which he climbed to power and has bid defiance to the Mining Stock Association.

The Engineering and Mining Journal never did have much faith in the reforming tactics of the most noble "Jim," for, as he is a partner with Senator Jones and Mackay in one of the notorious mill rings.

The latest move of "Jim, the Reformer," has just transpired. A special meeting of the directors of the company was summoned for the 13th inst., and, like all special meetings of mining companies, was a secret family affair at which the presence of outsiders was neither requested nor desired. In order that certain of the proceedings may be fully understood, in the light of what was said in these columns a week ago, it is necessary to note who were present and their status in the mining world. First came

Nat Messer, who ten years ago was struggling in the throes of poverty, but who has, by acting as general factotum to young Flood, developed into the president of the Hale & Norcross and Andes Mining Companies; President Fish, of the Consolidated California & Virginia Mining Company; President Lyle, who has been a prominent manipulator for years of the Qujtotoas, and Attorney Wells, president of the Savage Company, and acting attorney for several mining companies when the services of a confidential man is required who is able and willing to do the wrong thing in the right place.

These gentlemen represented the Flood interest. Messrs. Edwards and Gurnett were present as directors representing the Brokers' Combine, and last, but by no means least, was ex-Attorney-General W. H. H. Hart, who is the arch traitor Levy's side partner.

Motion by Lyle, seconded by Wells, to the following effect: "Resolved, that this company file a supplemental answer in the case of M. W. Fox vs. the Hale & Norcross S. M. Company et al., and that Mr. W. H. H. Hart be appointed attorney for this company to file said answer and to take such steps as he may deem proper to fully protect the rights of this company under said judgment. And said W. H. H. Hart to be substituted as attorney for this company in the name and stead of the attorneys who have heretofore filed answers for this company."

A special meeting called three days later, on the 16th inst., allowed Mr. Gurnett to offer a resolution, seconded by Mr. Edwards, that Mr. Wells be appointed to attend to the Fox suit, in place of Mr. Hart, without any other compensation than his present salary.

The presumption of these two outsiders in daring to interfere with the plans of Flood in his work of reform was punished by the adoption of the following amendment, offered by Fish:

"(1) That this corporation employ W. H. H. Hart as attorney for this company at the following compensation: First, $2,000 cash down, $1,000 when the case is in the Supreme Court for agreement, and $2,000 cash when the case is finally ended; second, a balance for $5,000 contingent, that the defendants in the case pay judgment into the treasury of not less than $200,000."

Messrs. Gurnett and Edwards voted against the adoption of the amendment, but "Jim, the Reformer's" clique triumphantly carried it through, General Hart meantime remaining modestly silent.

And so the case stands. It is known openly, no particular secret being made of the fact, that Mr. Hart is really retained to do precisely similar work to that to be done by Attorney Heron for Alvinza Hayward, viz., fight the judgment in the Supreme Court. To quote the decision of Judge Hebberd, the directors of Hale & Norcross—that is, "Jim, the Reformer," and his pocket voters—persist, pertinaciously and against the interest of the stockholders, in making the company a defendant in the case, and fighting the stockholders with their own money.

NEW MEXICO.

Grant County.

The Anson S. smelter at Hanover has been blown in. There was ore enough out for only a short run, as the smelter treats from 30 to 40 tons of ore a day.

PENNSYLVANIA.

Coal.

Messrs. A. S. Van Wickle & Co., who operate the Milnesville mines, have introduced electric light. They are engaged in stripping, and in order to work day and night intend to use 40 arc lights of 2,000 c. p. each. These arc lights are operated by a self-regulating dynamo.

The Schuylkill Coal Exchange has issued a report dated Pottsville, June 29th, which shows the following collieries drawn to return prices of coal sold in month of June, 1892, to determine the rate of wages to be paid, make returns as follows: P. & R. C. and I. Company, Shenandoah City Colliery, $2.27[1]; Reliance Colliery, $2.45[1]; Hammond Colliery, $2.39[2]; Gilberton Colliery, $2.47[2]; Thomas Coal Company, Kehley Run Colliery, $2.32[4]; total, $11.91[7]. The average is $2.38[8]. The average of these prices being $2.38[8], the rate of wages to be paid for work for last two weeks of June and first two weeks of July, 1892, is 4% below the $2.50 basis.

In Westmoreland County the sale of coal lands has been very great during the past year. The money brought into the county by this alone aggregates over $2,000,000. The purchasers are from New York, Philadelphia, Erie and Cleveland, O., as follows: Charles T. Peters, New York, 3,500 acres in Sewickley township, gas coal, $395,000; Westmoreland Coal Company, Philadelphia, 1,200 acres in North Huntington township, $250,000; also 1,000 acres in Reuben township, steam coal, $125,000; Elkins Gas Coal Company, 900 acres in Penn township, steam and gas coal, $200,000; Penn Gas Coal Company, 2,300 acres in North Huntington and Sewickley townships, gas coal, $325,000; Youghiogheny River Coal Company, of Erie, 1,000 acres on Youghiogheny River, in Sewickley township, gas coal, $240,000; George B. Roberts, Jr., and others, of Philadelphia, 800 acres in Hempfield township, gas coal, $98,000; Philadelphia people identified with the Pennsylvania Railroad, 2,300 acres in South Huntington, $230,000. In addition to these sales, 500 acres of coking coal near Mount Pleasant, at $500 an acre, were sold to W. J. Rainey, of Cleveland, O., and numerous other sales made in Rostmore township.

Philadelphia & Reading Coal and Iron Company.—This company's collieries in the Hecksherville Valley started work on the 27th ult., with 10 hours a day for four days a week.

SOUTH DAKOTA.

Custer County.

Rapid City.—A meeting of all persons interested in mines and mining in South Dakota has been called to meet at Rapid City July 5th. This meeting is called for the purpose of taking action toward revising the present mining laws of South Dakota. The Rapid City "Union" says: "One feature of the law which it is desirable to have changed is that relating to locating and holding ground. The law at present for the nominal filing fee paid the Register of Deeds allows one man to hold, without doing any work on them, as many claims as he may care to stake off. By relocating, providing he does so promptly and gets to the Register of Deeds office first, he can hold the claims for a number of years. A law requiring that before filing on it the claim should be surveyed by a United States deputy mineral surveyor and a 10-ft. shaft sunk on it would, in the opinion of some mining men, be a great improvement over our present law governing locations."

Lawrence County.

Bear Gulch Tin Reduction Works.—The Deadwood "Daily Pioneer" says: "Negotiations are going steadily on for the erection of a large tin reducing plant at Bear Gulch. Parties at the head of the scheme have purchased a large number of claims in that vicinity. Recently the plan of building a plant to treat 400 tons of ore daily was laid before the officials of the Chicago, Burlington & Quincy Railroad, and at the next meeting of the board of directors an extension of the road to Bear Gulch will probably be ordered. The construction officers are now engaged in considering the survey plats furnished some time since.

Consolidated Chlorination Company.—On June 21st the Consolidated chlorination plant, Deadwood, started. The work on this plant was commenced last December, but bad weather has delayed the completion of it a month beyond what was anticipated. Some of the important parts of the machinery have been delayed by the blockade, but as soon as they arrive everything is in readiness to at once place them in position. The works are of 100 tons daily capacity, and will be supplied for the present with ore from the Portland mine. There is now about 700 tons on hand.

Hawkeye Gold Mining Company.—The annual meeting of this company was held at Des Moines, Ia., on June 7th, and the following officers were elected: George Bauschbach, Chicago, president; A. K. Clark, Omaha, vice-president; W. J. Hunter, Des Moines, secretary; W. R. Ankeney, Des Moines, treasurer; David Hunter, Deadwood, general manager. The meeting was harmonious in every way, says the Deadwood "Daily Pioneer." The report of the general manager showed the condition of the mine to be very encouraging, and the financial standing of the company is excellent. The general manager was instructed to push work on the mill, and he is expected to return here in a few days to superintend the work in person. Development work on the mine continues steadily, and every day adds to the value of the ore bodies. The grading for the mill is complete and a few of the timbers are in position.

Savage Tunnel Mining Company.—It is the intention to increase the force of men at work on this tunnel and to drive it through as soon as possible, says the Deadwood "Daily Pioneer." The property is situated in Whitewood Gulch and lies contiguous to the Homestake Company's property. A tunnel nearly 1,000 ft. in length has been run to tap the vein, and it is estimated that 200 ft. more will accomplish the desired object. As soon as ore is struck a large stamp mill will be erected. The company owns mill sites and water rights in Whitewood Gulch, and the location of its plant will probably be there.

Seabury-Calkins Mining Company.—At a recent meeting President Maloney submitted a report on the property by Titus E. Corkhill, State Mine Inspector. He advises the continued working of the property, especially of the ore body found on the 65-ft. level.

Sullivan Consolidated Gold Mining Company.—The Deadwood "Daily Pioneer" says: "It may be well to sound a note of warning to eastern purchasers of mining stocks. According to New York papers, Sullivan Consolidated stock is selling at 55 to 60 cts. a share. There is a property of that name in the southern hills that has never produced a dollar and never will. There have been no recent developments on the property to justify any activity in the stock, and the boom that is on is probably for the purpose of inducing gullible purchasers to invest on the strength of a rising market."

Welcome Mining Company.—For a number of years the company has held claims in this district, constantly doing development work and awaiting for some process to be introduced that would reduce the ores. As soon as it was thoroughly demonstrated that chlorination was a success, a large plant was erected in Rapid, the largest of its kind in the world, and shipments of ore have already begun. The works are in operation and running in a satisfactory manner under the management of R. H. Thorburn. The mining property of the Welcome Company proper lies at the base of Terry's Peak, and in one claim a shaft 120 ft. in depth has been sunk, from which drifts have been run, exposing an ore body 70 ft. in width and running the entire length of the claim. This ore body is on the second contact, and its discovery has led to prospecting that has resulted in uncovering ledges in various other claims and added largely to the ore output of this district. The company has since brought numerous other properties on which a large amount of development work will be done this season.

UTAH.

Box Elder County.

Garfield.—The tunnel on this mine, in Gibb's Canyon, north of Brigham City, is in 200 ft., and in the face they have a 5-ft. vein of good ore, it is said, in sight.

Cache County.

Richmond.—A new mining district has been formed at this place, and Mr. H. B. Harrison has been appointed recorder. The Richmond mine has been opened to a depth of 35 ft. and galena is being taken out.

Pi Ute County.

Deseret Mining Company.—A 15-ft. body of ore was struck in the tunnel of the Branch mine recently, says the Salt Lake "Stock Exchange Journal." The ore averages, for the 15 ft., 31 oz. in silver and $9 in gold, and is improving in value as work progresses.

Juab County.

Centennial-Eureka Mining Company.—The improvements on this mine have kept the working of the mine at a very low ebb, and little ore is being extracted this summer, says the Salt Lake "Herald." The improvements consist of a 125-horse engine, a double department shaft, doubling the capacity of the hoisting shaft.

Millard County.

Deseret Gold and Silver Mining Company.—Superintendent Tate says, reports the Salt Lake "Herald:" "We have a large body of ore in the main tunnel, now in 350 ft. The face nearly all in ore. Will have to cross-cut to determine the width. We have a vein of ore in No. 2 tunnel from 10 to 12 ins. wide. We will be ready in a few days to sink from bottom of 50-ft. shaft to the main tunnel below. That work done, the mine will be ventilated and in condition to produce a large amount of ore. A dispatch was received stating that a big body of ore had been encountered in the lower tunnel, averaging 31 oz. silver, while picked specimens went as high as 64 oz."

Salt Lake County.

At a meeting of the American Natural Gas Company June 24th, in Salt Lake City, the new directory of the company was ratified. A proposition was made by Mr. Rhodes, of Denver, to build a pipe line from the gas field to this city and lay 60 miles of pipe in the thickest settled portion of the city was also considered. Mr. Rhodes' proposition is to accept the bonds and stock of the company in part payment at their par value, the cash consideration being from $150,000 to $250,000.

Alamo.—The mine has been freed from water and the development work is being pushed. The main tunnel, which is sunk in talc and decomposed quartz, gives every indication of mineral. A distance of 343 ft. has been reached, and the cross-cut started at the 200-ft. level is now in 235 ft.

Starlus.—These claims are being worked under lease by Knox & Ross, says the "Mining Age." The main tunnel has been driven over 200 ft. A cross-cut is being worked on a vein of ore which outcrops for 75 ft. on the surface, and it is expected that it will tap the ledge at a depth of 215 ft.

Utah County.

Coal has been discovered in Provo Canyon, and development work is being done to determine the value of the deposits.

Washington County.

Dixie Mining Company.—Sixty-two tons of copper bullion have been received from the smelter at St. George, owned by Wooley, Lund and Judd, and sent on east, says the Salt Lake "Herald." There are also en route 15,000 lbs. of copper matte which will assay 63%. Assays from a carload of ore showed 46.15%. The smelter is now closed down, but will be started up again just as soon as there is a sufficient supply of ore on hand. Work at the mine has been hindered because of a lack of timbers, which could not be obtained owing to the deep snows in the mountains from which they are obtained.

Weber County.

Red Jacket Mining Company.—This property is one of the most promising in La Plata. It has proved to be a producer of high grade ore in large bodies from the grass roots. Several hundred tons of ore from this mine has already been shipped and a large amount of mineral is now in sight, ready to be broken down. The ore is galena, running high in silver, and a carbonate ore that assays 62% lead and 12 oz. in silver.

Sundown-La Plata Mining Company.—The leading property in La Plata is the group owned by this company, which includes the two producing mines, the Sundown and the La Plata, and the Lucky Thought,

the Champion, the Experience, the Thatcher, the Treasure, the Chance and Glencoe, ¼ interest in the Queen of the Hills, and a millsite, on which is located the spring from which the camp is supplied with water, says the Salt Lake "Daily Stock and Mining Journal." On the La Plata the shaft is run down 156 ft., and in all there has been driven about 500 ft. of drifts and cross-cuts on the two levels. This mine has shipped 80 tons of ore that assayed from 70 to 76% lead, and 6 to 7 oz. silver. The property is equipped with a small but complete hoisting plant, and is supplied with everything necessary for a three months' run, as soon as the company resume operations, which will take place soon. The Sundown, since its discovery last fall, has shipped 113 tons of ore that went 82% lead and from 6 to 7 oz. silver. There is a shaft on the Sundown 44 ft. deep, and a tunnel has been run in the hill a distance of 125 ft. Four men are now at work on the tunnel, which is being driven to cut the ledge. At the discovery of the Sundown there is a blowout or ledge of copper of high grade, on which development work will soon be pushed.

FOREIGN MINING NEWS.

The West Cumberland Iron & Steel Company held an extraordinary general meeting of the debenture holders and the shareholders at Carlisle on May 21. The chairman moved that the company be wound up voluntarily, and that Mr. W. B. Peat, of London and Barrow, be appointed liquidator. Six months ago he expressed a hope that trade would improve, and that the company would get over some of its difficulties, but since then, owing to the continued fall in the value of pig-iron and steel rails, without any diminution in the cost of raw material and hardly any appreciable reduction in wages, things had gone from bad to worse, and it had been found expedient to close every department of the works. This company is one of the largest workers in hematite iron, and it always enjoyed a good reputation.

BRITISH COLUMBIA.

The New Vancouver Coal and Land Mining Company, Limited.—The general annual meeting of this company was held in London on the 14th June. The output for the last half year has been 204,890 tons, against 253,000 tons for the previous half year. Of these 50,000 tons were sold locally and the residue in San Francisco; 30,000 shares have been issued to Messrs. Rosenfeld in payment of the company's indebtedness to them, so that the item in the balance sheet of £89,000, duly credited, has been reduced considerably. The indebtedness during the year, however, owing to the purchase of estates and buildings and the purchase of additional rolling stock, has been increased somewhat. The company holds 282 acres of unsold land in the city of Minaima, which they have been selling at $2,500 an acre. The future of the company is considered bright.

Galena.—The preparations for the smelter at this place are nearly completed, and work is being pushed to have the smelter working by Oct. 1st. Among those interested in the adventure are Franklyn Farrel, of the Parrot Copper Company, of Butte, Mont.; A. B. Hendryx and A. W. Jinks, representing the Aurora Smelting Company, of Aurora, Ill.

MEXICO.

Michoacan.

National.—This mine has shipped to Denver, Colo., another carload of good ore assaying upward of $400 per ton, including 2½ oz. in gold.

La Luz de Borda.—The constant experience of miners in this district shows beyond all question the necessity of sinking below the old Spanish workings in order to strike bonanzas. The La Luz de Borda, notwithstanding the limited amount of work done in the mine since the 1st of May, is now producing, from the Reforma vein, on the main tunnel level, ore assaying from $20 to over $110 per ton in silver and gold. A new vein, from 6 to 8 ins. wide, has been encountered further ahead on the tunnel level, between the last mentioned vein and the "Trigueros," carrying ore which assays from $50 to $100 per ton of 2,000 lbs. The main tunnel is rapidly approaching the Trigueros vein, which it will cut at a depth of 300 ft. High grade ore was taken from this vein by the former owners, until they were driven out by the influx of water. The object of running the tunnel is to tap the Trigueros on the 300-ft. level, and, by draining it, render possible the extraction of the rich ores left standing there by the old "gambucinos." The distance to be run is, at present writing, only 35 to 40 metres. The sinking of the main shaft over the Peso vein in the same property will be shortly resumed.

Monterey.

Banco de Plata.—About three years ago Juan Boy, the owner of the Malacate group of mines, named El Banco de Plata, in the district of Sultepec, entered into a contract for the sale of the mines to Jesse R. Grant at the price of $300,000. Mr. Grant, in turn, contracted to sell them to the "Credit Foncier Company," of France, at a much greater price than $300,000, but that company failed to carry out its agreement by reason of heavy losses in copper speculations. Mr. Boy thereupon endeavored to cancel the agreement between him and Mr. Grant, on the ground that the latter had not completed the purchase within the stipulated time, and a law suit is now pending to determine the rights of the parties. Pablo de Royal, who has recently reported upon the mines, says: "The principal mines are the San Pascual, Concepcion, Capulin Providencia and Veta Negra. The average results of 250 assays showed $24.25 gold to the ton, and the average of 298 assays gave $52.46 silver to the ton. Twenty-eight assays showed on an average 26·75% lead. The mines when put in good working condition will yield 200 tons of ore per day."

Puebla.

The onyx mines near Tepeaca, in this State, have passed under the control of Messrs. J. W. Wilson & Co., New York, says the "Two Republics." This company will also work a number of asbestos mines in the same vicinity. The mineral is pronounced to compare favorably in quality to that of either Canada or Belgium.

ONTARIO.

Port Arthur.

This town, according to the "Weekly Sentinel," is to be the home of a new mining school. It will have a Government endowment.

SOUTH AFRICA.

Transvaal.

McArthur-Forrest Process.—The Ferreira Gold Mining Company state in their annual report that since the introduction of the McArthur-Forrest process on Dec. 6th, 1891, 15,310 tons of tailings have been treated, producing 3,495 oz. of fine gold at a total cost of £8,970 19s. 10d., being 11s. 8.62d. per ton. The average extraction has been 74.25% of the assay value. Profit, £4,406 18s. 7d.

Robinson Gold Mining Company.—The report on the operations for April has just been issued. The mine: There were 8,852 tons of quartz mined, 85 ft. of shaft sinking was accomplished, and 921 ft. of driving, cross-cutting, etc. The total footage of main drives to date is 18,296 ft. The mill: Sixty stamps were at work for 29 days, crushing 8,852 tons; 5.08 tons were crushed per stamp per day; and the yield was 8,904 oz. 9 dwts., of the approximate value of £31,610. Recovery Works: The total of gold won by cyanide and chlorination processes was 6,320 oz. 7 dwts., including 122½ oz. won from dry crushed ore. Total value: The approximate value of the month's total yield is £52,600. Quarterly statement: A statement of expenditure for the quarter ending 31st March, during which 24,348 tons were crushed, showing as follows: Mining, £17,171; mine maintenance, £2,265; milling, £5,484; mill maintenance, £1,619; general maintenance, £1,012; general charges, £4,526. Total, £32,081, or 26s. 4·21d. per ton. The working cost of the chlorination and cyanide works (including maintenance) was £17,056. There was expended on mine development £12,949, and capital expenditure on permanent works £19,335. The purchase of concentrates during the quarter amounted to £23,478; grand total of expenditure for the quarter, £104,900. Output during the quarter amounted to 42,036 oz., or 1.72 oz. per ton crushed. This output does not include that derived from purchased concentrates.

From the compilation of Mr. A. R. Goldring, secretary of the Witwatersrand Chamber of Mines, we find that the output of the Rand for April was 95,562 oz., obtained from a total of 153,197 tons crushed, an average yield of 9.33, or, including that obtained from tailings and concentrates, of 12.4 dwt. per ton. During the month 1,880 stamps were in operation for an average period of 25.22 days, and the average duty per stamp was 3.22 tons per 24 hours. At the Aurora and Robinson mills the stamps averaged 5.88 and 5.08 tons. During the month of April, 1891, the output was 56,360 oz., consequently the increase has been nearly 70%. This increase is greatly due to the improved method of treating tailings and concentrates, as much as 14,000 oz. being obtained from this source, while for April of 1891 but 1,736 oz. were so obtained. In 1891 1,465 stamps were in operation with a duty of 2.84 tons per stamp, the running time being 26.15 days. The milling average of the ore has been slowly decreasing, it being in April of 1890 13.89 dwts.; of 1891, 10.38 dwts., against 9.33 dwts. during April of 1892. Of the total amount 10,389 oz. were obtained from tailings treated by the cyanide process, while nearly 4,000 oz. were obtained from concentrates by chlorination.

VENEZUELA.

Quebrada Railway, Land and Copper.—The report for the year 1891 states that a most serious political disturbance has occurred in Venezuela, which has caused a grave, but, as the board hopes, only temporary, prejudice to the company's business. The company's railway and shipping port have been in possession alternately of either party, and the danger has been such that the board is glad to report the presence of one of her Majesty's ships at Tucacas, to insure protection of the company's property. By the latest accounts both railways were under Government orders, and the actual state of things as regards traffic is very uncertain. The acting agent also telegraphs that the smelting furnaces have been, from these causes, temporarily shut down. Under the circumstances it has become a matter of anxious deliberation with the board as to the policy they should recommend to the shareholders touching the disposal of the balance shown by the accounts, viz., £65,523, of which £18,148 has already been distributed as an interim dividend at the rate of 5% per annum, leaving £47,374 undisposed of; an amount which is subject to an additional sum being carried to suspense account to meet the provisional settlement of the claim for arrears of royalties. It has been decided to retain the balance of the profit in hand until the political situation is cleared, and its effects upon the company's business can be definitely ascertained.

CHEMICALS AND MINERALS.

NEW YORK, Friday Evening, July 1st.

Heavy Chemicals.—The market for heavy chemicals has undergone no change of importance during the week. Although, generally speaking, it is dull, it is by no means weak, and prices remain stationary. In caustic soda there has been a fair business, all things considered, and the demand has been normal. In carbonated soda ash and alkali there has been an improved demand for forward shipments. Arrivals have been moderate during the week, and as they were almost practically contracted for have gone into consumption. Our quotations this week are as follows: Caustic soda, 70%, 2·95@3·10c.; 74%, 2·97½@3·12½c.; 76%, 3·12½@3·25c.; 77%, 3·12½@3·25c. Carbonated soda ash, 48%, 1·55@1·60c.; 58%, 1·47½@1·52½c. Alkali, 48%, 1·55@1·60c.; 58%, 1·47½@1·52½c. Sal soda, English, 1·05@1·10c.; American, 1@1·12½c. Bleaching powder, 2·15@2·20c. on the spot, according to quantity.

Acids.—Business in this market continues good. The demand has, if anything, increased of late, and manufacturers are very busy. Prices, however, show no improvement, and we continue to quote: Acid per 100 lbs. in New York and vicinity, in lots of 50 carboys or more: Acetic, $1.60@$2, according to quality; muriatic, 18°, 80c.@$1; 20°, 90c.@$1.10; 22°, $1@$1.25; nitric, 40°, $4; 42°, $4.50@$4.75; sulphuric, 85c.@$1.10; mixed acids, according to mixture; oxalic, $7.25@$7.75. Blue vitriol is quoted all the way from $3.25@3.50; alum, lump or ground, $1.55@$1.80. Glycerine for nitro-glycerine, 11½@12½c., according to quality and quantity.

Brimstone.—There is not much doing in this market. Prices continue high. Quotations for best unmixed seconds on the spot are $24 to $24.25. It is claimed that there are no thirds on the spot and quotations for them are not obtainable. For goods to arrive, June-July shipments, quotations are as follows: Best unmixed seconds, $23@$23.50; thirds, $1 less. According to a prominent dealer in this city, the present high price of Sicilian brimstone can be accounted for only by the fact that stocks in Sicily remain stationary. He estimates that the demand from the United States has decreased, and that from other countries has increased in the same proportion, so that the exports from Sicily have not fallen off.

Fertilizers.—The usual summer dullness prevails in this market. During the week business has been small and devoid of features of interest. With the exception of dried blood, which is higher, prices show no changes of any importance. Our quotations this week are as follows: Sulphate of ammonia, $2.80@$2.85 for bone goods and $2.87½@$2.90 for gas liquor. Dried blood, $1.90@$1.95 per unit for high grade and $1.80@$1.85 for low grade. Acidulated fish scrap, $11@$12; factory dried scrap, $21.50. Azotine, $1.80@$1.85. Tankage, $17.50@$21, according to grade. Bone meal, $22.50@$23.50.

Double Manure Salts.—Quotations are as follows for lots of from 10 to 50 tons ex-vessel New York: 48–53%, $1.13½@$1.23½; 90–95%, $2.13@$2.23½.

Kainit.—There is no change to report in this article. Prices remain: $8.75 for invoice weight and $9 for actual weight, New York and Philadelphia.

Muriate of Potash.—There is nothing new to report in this chemical, which continues very quiet. Prices remain as fixed by the syndicate, to wit.: Fifty-ton lots or over, New York and Boston, $1.81½; Philadelphia and Baltimore, $1.84; Southern ports, $1.86½.

Nitrate of Soda.—This market is rather strong at present. Spot prices are $1.70. Prices to arrive are $1.70@$1.72½. Buyers just now are holding off on account of these prices, but according to advices received from Europe and the west coast the prospects for a decline are slight.

Liverpool. June 22.

(Special Correspondence of Joseph Brunner & Co.)

Business in heavy chemicals generally continues of a retail description, although at the same time prices are fairly well maintained.

Soda Ash.—As previously advised, the Alkali Company declines to book any orders for soda ash for delivery during the balance of this year, except for barrel orders for special markets, and this only in a retail way. Quotations are therefore quite nominal as follows: Caustic ash, 48%, £5 6s. 3d. per ton; 57–58%, £6 7s. 6d. per ton. Carb. ash, 48%, £5 9s. 9d. per ton; 58%, £6 12s. 9d. per ton. Ammonia ash, 58%, £6 7s. 6d. per ton, all net cash.

Soda Crystals are meeting with a fair amount of attention and firm at £3 7s. 6d. to £3 10s. per ton, less 5%.

Caustic Soda is slow of sale, and seems difficult to move. Quotations, however, are steady as follows, viz., 60%, £9 2s. 6d. per ton; 70%, £10 5s. per ton; 74%, £11 5s. per ton; 76%, £12 5s. to £12 10s. per ton, all net cash. For parcels under 10 tons 5s.

per ton extra is charged. There are some resale parcels to be had at a shade under prices named above. There is none to be had on this market for export to the States.

Bleaching Powder is not active, but, being scarce, is firmly held at £7 15s. to £8 per ton net cash for hardwood; for all quarters except United States and Canada.

Chlorate of Potash is not active. The principal business is being done by resellers, who are quoting 6⅝d. per lb. for prompt delivery. For July-December the quotations range from 6½d. to 6¾d. per lb., less 5%, but buyers hold aloof.

Bicarb. Soda in fair request at £6 15s. per ton, less 2½%, for 1 cwt. kegs, with usual allowances for larger packages.

Sulphate of Ammonia is rather firmer, as in most cases manufacturers are holding off and decline to accept the low prices which have been the rule lately. There are still some second-hand parcels offering, however, and the spot quotations are as follows: £10 2s. 6d. to £10 3s. 9d. per ton for good grey 24%, and £10 5s. to £10 6s. 3d. per ton for 25%, both in double bags, less 2½% free on board here.

MINING STOCKS.

[For complete quotations of shares listed in New York Boston, San Francisco, Baltimore, Denver, Kansas City, Deadwood, Dak., Pittsburg, St. Louis, London and Paris, see pages 22 and 24.]

NEW YORK, Friday Evening, July 1, 1892.

Dullness continues unabated in the mining stock market. Business dwindles from week to week and brokers aver that orders to sell are as scarce as orders to buy and that the only encouraging feature to be noted in connection with the course of the market is the fact that the Comstock "mill ring" is getting the worst of the fight. This week total transactions aggregate but 15,870 shares, and it must be borne in mind that of this amount a great proportion is low priced, non-dividend paying stocks.

In the ENGINEERING AND MINING JOURNAL of June 18th we reproduced a portion of the annual report of Mr. S. White, Jr., Chairman of the Committee on Mining Securities, in which he stated that arrangements were under way which might result in making the Consolidated Stock and Petroleum Exchange the center for transactions in mining stocks in the United States.

Mr. White informed us to-day that a conference of the various mining exchanges of the country will take place in September under the auspices of the Consolidated Exchange in the Exchange's building, in this city. The object of this conference will be to agree upon some plan or plans which shall prove beneficial to all the mining exchanges in the United States.

The silver question will not be even touched upon and the meeting will be devoid of political features of any kind. Among other things it is intended to collect information about the various mines listed in the several exchanges and to place this information at the disposal of each exchange and of the public. Steps will be taken also to attract the attention of the public to trading in mining stocks. This conference cannot fail to prove beneficial to the exchange. Whether it will be of advantage to mining itself is another question.

Some interest has been aroused in the Mining Congress which is to be held in Helena, Mont., on the 12th inst. Mr. L. V. De Forrest, the well-known broker, has been appointed a delegate by the Committee on Mining Secnrities to represent the Consolidated Stock and Petroleum Exchange. Mr. De Foreest will also represent the city of New York. He leaves for Helena this evening.

The exchanges adjourned to-day until next Tuesday on account of the National Holiday.

The Comstocks have been neglected during the week and but few sales are reported. Of Comstock Tunnel 1,000 shares of the stock sold at 12c.; neither the bonds nor the scrip was traded in. Among other sales we note: 100 shares of Barcelona at 14c; 100 shares of Best & Belcher at $1.50; 570 shares of Consolidated California & Virginia at $3.35@$3.65; 300 shares of Hale & Norcross at $1.40@$1.50; 150 shares of Ophir at $1.75; 150 shares of Savage at $1.50; and 100 shares of Sierra Nevada at 85c.

Of the Tuscaroras 1,300 shares of Belle Isle were sold at 4@5c. None other was dealt in.

Of the California stocks Bodie Consolidated shows sales of 300 shares at 15@20c. An equal number of shares of Bulwer sold for 40c. Standard was in some demand, 900 shares being sold at $1.60@$1.75. From an officer of the company we learn that the company has $45,000 in the treasury, the May product being included in this amount. The recently declared dividend is payable on July 26th, therefore, by that time, the proceeds for June will have been added to the above sum and the company will have a handsome surplus. The mine is looking well and the superintendent's reports are very encouraging.

Of other California stocks Belmont shows sales of 800 shares at 38@39c. A telegram has been received from the superintendent of this mine, dated Sutter Creek, June 30th, as follows: "The bottom of the Boss shaft is full of quartz. The water is slacking. Sinking is progressing nicely."

Of Brunswick Consolidated reported sales amount to 2,100 shares at 12@16c. There were 1,000 of Astoria sold at 2c.—at least so the *official* sales lists report. Middle Bar, which has not been traded in for a long time, turns up this week with a sale of 500 shares at 3c. Next week we shall have interesting news about this property.

Of the Colorado stocks we note sales of 100 shares of Adams Consolidated at 90c.; 100 shares of Breece at 38c.; 500 shares of Chrysolite at 16@18c.; 900 shares of Little Chief at 25@26c.; 600 shares of Robinson Consolidated at 35@45c.; 1,700 shares of Silver Cord at 35c.

Of the Black Hills stocks there were sales of 200 shares of Caledonia at 80c., 100 shares of Father de Smet at 30c., 600 shares of Sullivan Consolidated at 88@94c.

Horn Silver was dealt in to the extent of 200 shares this week at $3.35. From a prominent officer we learn that the company is now shipping more ore than for a long time past and of a better grade. The proceeds from the ore sales are larger, owing to a concession in freight rates (about 10%) from the railroad companies. The company has declared its regular quarterly dividend of 12½c per share, payable on and after June 30th.

Castle Creek shows sales of 800 shares at 2@3c.

El Cristo this week was dealt in to the extent of 400 shares at 35@40c.

Boston.

(From our Special Correspondent.)

There has been more activity in the market for copper shares the past week, especially in Boston & Montana, which has been weak and heavy with a great deal of stock pressing for sale, and a consequent decline in value. There seems to be a desire on the part of insiders to get it lower, and nearly all of the stock comes from that source. The result is that to-day's prices is the lowest since March last. The stock sold in the early dealings at $40 and gradually declined to $37½, the price reached to-day. The floods have retarded the work on the new plant at Great Falls, causing a loss of production which will probably affect the question of dividends, as the policy of the company is to pay as they go, and avoid a floating debt. Over 8,000 shares have changed hands the past week, and the stock closed at the lowest price. The weakness in Montana has affected the balance of the list, all of which show more or less decline, with the exception of Calumet & Hecla, which sold at $270 same as last week's. Butte & Boston has been only lightly dealt in at $12@11¾. Centennial declined to 9½ on small sales.

Franklin sold at $12½, ex-dividend $2, a decline of one-quarter. It is rumored that the management of the Quincy is endeavoring to secure a controlling interest in the Franklin for the purpose of uniting the companies in one interest.

A small scale of Kearsarge is reported at $12. The work of reconstructing the rock house is being vigorously pushed. Osceola declined from $30½ to $28, with stocked being pressed for sale. The outlook for dividend, with the present price of ingot copper, is not very pleasing. Atlantic sold down to 9¾ for round lots and 10 shares sold at $9.

Tamarack was more freely offered this week, and declined to $158, with recovery to $160 on latest sale. Tamarack, Jr., sold as low as $34 and as high as $38, closing sale to-day being at $36. The vein in this mine, it is reported, has widened out to 12 ft., and is more uniformly rich in copper than when first opened.

Allouez sold down to 75c., and Santa Fe further declined to 10c.

Silver stocks continue to be neglected. Crescent sold at 8c., and Dunkin at 25c.

3 P. M.—Boston & Montana improved a fraction after the noon hour, and sold at 37¾@38.

Franklin declined to 12¼ and Osceola to 27⅛; balance unchanged.

San Francisco. June 25

(From our Special Correspondent.)

For very many years the mining stock market has not been so dull or in such a thoroughly unsatisfactory condition as at present. It is quite a usual feature for prices to decline to bedrock, and indeed such low prices have, in previous days, been a leading characteristic of the time preceding a boom in stocks, and so far was accepted as an indication of good times at hand. At present, however, the market is thoroughly disorganized. To date the brokers have allowed themselves to be manipulated by the Comstock ring, not caring who suffered so long as they profited. They sowed the wind, and if they reap the whirlwind few will be sorry. In days gone by the Pine street brokers were the aristocrats and the autocrats of the city. Now all is changed, and Pine street is on a par with the adjacent "Pauper's Alley," and visitors to the neighborhood do well to keep their hands on their loose cash. The Comstock ring care nothing for the brokers except so far as they may serve their purpose; expose after expose has shown the rottenness of mine management, and reputable investors have long ago retired from the street, leaving the market in the hands of mining sharks, cappers and fools.

In the light of recent events it seems odd to hear men who, judging from their age, ought to have learned by bitter experience, express the hope that a development may be made somewhere on the lode and thereby give stocks a fillip. It never has been the case that an ore development has inflated values, but a reported development in a mine has often been the means used by the "ring" to boom prices and then unload comparatively valueless stock on the public.

So, doubtless, at present advantage is being taken of the depressed condition of the market for the mining ring to buy in. Notwithstanding, however, the amount of trading is so small at present that the exchanges have to levy assessments to carry on business.

The week opened with a slight spurt in the Gold Hill and middle stocks, Belcher particularly being in demand. It was a dying struggle, however, and prices have shaded off until to-day business has been very dull, with Belcher continuing the favorite.

At the north end Consolidated California & Virginia sold for $3.50, and remained steady during the day. Mexican sold for $1.35; Ophir for $1.70; Sierra Nevada, 75c; Union Consolidated, 80c; and Utah Consolidated, 5c.

In the middle group Best & Belcher has ruled at $1.60 and was most in demand, if it be possible to so describe sales made when the entire list was stagnating. Chollar sold down to 25c; Gould & Curry for 70c; Hale & Norcross for $1.30; Potosi for 50c, and Savage for $1.40.

Of the Gold Hill and south end stocks Belcher opened at $1.20, but sold down during the day to $1.10, and closed at 5c off. Alpha ruled at 20c; Bullion at 55c; Caledonia at 20c; Crown Point at 80c; Occidental at 30c; Consolidated New York at 40c, and Overman at 60c.

Of the outside stocks Belle Isle sold for 5c; Bodie for 20c; Commonwealth for 5c; Mount Diablo for $1.25; N. B. Isle, 10c; Nevada Queen 50c, and N. Commonwealth 15c.

The market closed with prices a trifle below above quotations.

MEETINGS.

Best & Belcher Mining Company, at the office of the company, room 33, No. 309 Montgomery street, San Francisco, Cal., July 11th, at 1 P. M.

Union Consolidated Mining Company, at the office of the company, room 11, No. 303 California street, San Francisco, Cal., July 18, at 1 P. M.

DIVIDENDS.

Cook's Peak Mining Company, dividend No. 6, of five cents per share, payable July 10th, at the office of the company in Colorado Springs, Colo. Transfer books close July 2d., and re-open July 11th.

Mollie Gibson Consolidated Mining and Milling Company, dividend No. 24, of fifteen cents per share, $150,000, payable July 15th, at the office of the company in Colorado Springs, Colo. Transfer books close July 8 and re-open July 16th.

Standard Consolidated Mining Company, dividend No. 79, of ten cents per share, $10,000, payable July 26th, at the office of the company, rooms 15 and 17, No. 310 Pine street, San Francisco, Cal., or at the office of the Farmers' Loan and Trust Company, No. 20 and 22 William street, New York. Transfer books close July 16th and re-open July 27th.

ASSESSMENTS.

COMPANY.	No.	When levied.	D'l'nq't in office..	Day of sale.	Amt per share.
Alta, Nev.	42	June 18	July 26	Aug. 16	.15
Belcher, Nev.	44	May 17	June 21	July 12	.25
Blue Bird, S. Dak.	8	June 10	July 11	July 30	.000½
Bodie Con., Cal.	14	June 20	July 22	Aug. 22	.25
Bullion, Nev.	38	May 24	June 28	July 19	.25
Challenge Consolidated, Nev.	11	May 16	June 20	July 12	.25
Chollar, Nev.	33	May 28	July 7	July 27	.50
Comm'nwealth, Nev	8	June 16	July 21	Aug. 18	.10
Cons. St. Gothard, Cal.	5	June 9	July 14	Aug. 4	.05
Gould & Curry, Nev	11	June 7	July 12	Aug. 4	.25
Himalaya, Utah	69	June 13	July 13	Aug. 13	.00½
Mexican, Nev.	45	May 16	June 21	July 12	.25
Norway, Utah	....	Dec. 24	Feb. 1	July 21	.02
Ophir, Nev.	58	June 3	July 7	July 27	.50
Overman, Nev.	64	May 19	June 22	July 11	.30
Ruby Bell, S. Dak.	11	June 13	July 14	July 30	.000½
Sierra Nevada, Nev	102	June 11	July 13	Aug. 2	.25
Siskiyou Cons., Cal.	4	May 4	June 17	July 18	.01½
Summit, Cal.	12	May 20	June 27	July 29	.05
Utah Cons., Nev.	15	June 27	July 11	July 9	.25
Yellow Jacket, Nev	51	May 0	June 14	July 18	.25

PIPE LINE CERTIFICATES.

CONSOLIDATED STOCK AND PETROLEUM EXCHANGE.

	Opening.	Highest.	Lowest.	Closing.	Sales.
June 25.	52⅝	52⅝	52⅝	52⅝	1,000
27.	52⅞	53	52⅞	53	5,000
28.	52⅞	52⅞	52⅝	52¾	2,000
29.	....	....	....	....	.....
30.	53	53	52⅞	52¾	217,000
July 1.	53⅜	53⅜	53⅛	53⅛	26,000
Total sales in barrels.					241,000

NEW YORK STOCK EXCHANGE.

	Opening.	Highest.	Lowest.	Closing.	Sales.
June 27.	52⅝	52⅝	52¼	52¼	15,000
28.	53	53	53	53	3,000
29.	52⅞	53⅛	52⅞	53⅛	11,000
Total sales in barrels.					29,000

COAL TRADE REVIEW.

NEW YORK, Friday Evening, July 1st.

PRODUCTION OF BITUMINOUS COAL for week ending June 25th, and year from January 1st.

EASTERN AND NORTHERN SHIPMENTS.

	1892. Week.	1892. Year.	1891. Year.
Phila. & Erie R. R.	2,776	43,383	51,375
Cumberland, Md.	69,332	1,724,535	2,028,064
Barclay, Pa.	3,275	98,649	88,381
Broad Top, Pa.	7,875	280,837	248,267
Clearfield, Pa.	66,083	1,861,314	2,019,689
Allegheny, Pa.	28,853	595,352	652,735
Beach Creek, Pa.	41,876	1,227,932	1,137,721
Pocahontas Flat Top	41,077	1,100,845	1,218,457
Kanawha, W. Va.	50,579	1,181,411	1,146,987
Total	311,726	8,114,258	8,591,676

WESTERN SHIPMENTS.

	1892. Week.	1892. Year.	1891. Year.
Pittsburg, Pa.	25,293	631,979	516,811
Westmoreland, Pa.	33,196	790,306	891,061
Monongahela, Pa.	13,094	275,999	251,213
Total	71,583	1,698,284	1,658,085
Grand total	383,309	9,812,542	10,249,761

PRODUCTION OF COKE on line of Pennsylvania R. R. for the week ending June 25th, 1892, and year from January 1st, in tons of 2,000 lbs.: Week, 104,442 tons; year, 2,705,236 tons; to corresponding date in 1891, 1,636,578 tons.

Anthracite.

As we predicted last week the Reading combine has again forced prices up. On Wedesday, the 29th, the output for July was fixed at 3,500,000 tons; an actual output was 3,791,399 tons in July, 1891; 3,310,078 tons in July, 1890, and 3,627,522 tons in July, 1889. Immediately after the secret meeting of the "Barons" the Western sales agents put up their prices 25 cents all round; and the Eastern sales agents made an advance of 15 cents on grate, 30 cents on egg and 35 cents on stove and chestnut. The prices for July at tidewater are compared in the following table with the schedule rates in July, 1890, and July, 1891:

	July, 1890.	July, 1891.	July, 1892.
Grate	$3.65	$3.65	$3.90
Egg	3.75	3.85	4.20
Stove	4.00	4.04	4.50
Chestnut	3.65	3.75	4.40

This table does not by any means give a fair idea of the way that prices have been forced up this year; for whereas the schedule rates were cut very severely in 1891 and 1890 the present schedule rates are inexorably insisted on. We have reason to believe, though no definite statement has been made, that some of the parties in the deal expressed reluctance to this restriction for July, but that the objection was promptly overruled without discussion. This advance in prices has caused no consternation or panic among consumers, and the situation in the market does not change.

The restriction of the production may have an apparent unforseen result. The coal miners are paid by the ton of coal mined, and the restriction will therefore not suit their interests. If they should determine to take action, what will be the result? Will the owners increase their wages per ton to make up the difference, will they concede to the demands of the men for greater production, or will there be a strike or lockout? All these events open up vistas of speculation for the future of the anthracite trade which we cannot enter into now.

The Central Railroad of New Jersey, the Port Reading Railroad and the Philadelphia & Reading Railroad have filed their answers to the suit brought against them at Trenton by the State of New Jersey. These statements are extremely lengthy, and the three railroads say practically the same thing. The Central people deny that they were not authorized to use their corporate franchises for any other purpose than transport, or that they were not allowed to lease and operate another road. They deny every one of the clauses of the Attorney General's bill respecting the purchase of coal fields, and they state that the reason of the purchase was that it was deemed necessary in order to have a permanent supply of freight for the road, and also that they feared that other railroads might divert the transportation from the mines of the Lehigh & Wilkesbarre Company, and so prevent them from transporting the coal on favorable terms to the cities of South Jersey.

As regards the ownership of coal fields, all the railroad companies deny it, and they say that they cannot either separately or together fix or increase the price of anthracite. The only thing they could do would be to increase the freight rates, and this they have not done. Of the 15 places quoted in the affidavits, only one is supplied with coal solely over their railroads, and some of the places their lines do not enter at all. Finally, they say that the price of coal to consumers has not been raised since the combine commenced, and that it is no higher than the average of the last six years.

From these affidavits it appears to us that the Reading combine has made up their minds to enter into a protracted struggle. This litigation may go on for an indefinite period. This much is certain, however, that the consumer will not have any chance this year to lay in a winter stock at "summer prices."

The statements of the Reading Railroad and the Reading Coal Company for May do not show any effects of the combine. The expenditure and income have both increased proportionately. It is said that many unusual expenses have been incurred by the floods and improvements.

Bituminous.

The market in bituminous is the same as we have reported for the past few weeks, viz., quiet. A week or two ago many consumers were considering the advisability of throwing anthracite overboard in favor of bituminous, but the reports brought home from Chicago by those who attended the Democratic convention have tended to check most of the desire for bituminous. It is evident that unless some efficient smoke consuming or preventing apparatus can be devised the avarice of the anthracite owners will have to increase to a much greater pitch than at present before consumers will come over to bituminous.

The White Star line have renewed their contract with Castner & Curran for the supply of Pocahontas coal for the next 12 months. The amount contracted for is 140,000 tons.

Boston. June 30.

(From our Special Correspondent.)

The expected advance has come, but not as most people expected it would. An advance of 15c. on free broken, 30c. on egg and 35c. on stove and chestnut is considered too large. A number of our most prominent dealers did not expect to see an advance of more than 10 cents around. Just what effect this advance will have on the market is hard to state. Dealers here are all well stocked and probably would not purchase anyway. Here in New England dealers look for even higher prices by the combination.

We quote: Stove, $4.50; egg, $4.20; free broken, $3.90; chestnut, $4.40.

In soft coal there is practically nothing doing. Everybody is now interested in hard coal, and buy only enough soft coal to fill their immediate wants. We quote: Clearfield, $3.15 on cars here; George's Creek, $3.45@$3.50.

Freight rates have not changed during the week, but dealers look for a general drop of 10 cents in rates, there is so little call for tonnage for coal purposes.

The retail dealers hold a meeting to-night at which they will most likely decide to put up prices in accordance with the advances made by the combination. Almost without exception the retail dealers here consider their coal good property and they have as much as their yards will hold.

Chicago. June 30.

There is still very little doing in anthracite and the patience of agents of individual companies and the combine is greatly exercised over the lethargic condition of the market. Since the beginning of the week, however, there has been some small spasmodic demand and telegraphic orders were more frequent, doubtless stimulated by the expectations an advance July 1st. There has also been a trifle more activity in local business to dealers, but on the whole there is remarkable apathy displayed by distributors and consumers; nothing apparently seems to arouse either party. It remains to be seen what effect the advance will produce. That it will not affect all alike is a foregone conclusion; some will continue to buy and store coal, while others will hold off and continue their waiting policy. It is, however, a positive certainty that it will not affect the combine, which will merely laugh in its sleeve at the shortsightedness of dealers, who fancy that refraining from making their purchases and stocking up will in any way injure that solid coalition.

From our point of view there is evidently nothing to be gained by further delay or hesitation on the part of either dealers or consumers. We, of course, refer to better class of trade, those who would use hard coal at almost any price in reason. The month of June has gone, and so far very little coal has been sold, whereas last year hundreds of thousands of tons had been disposed to dealers throughout the West and Northwest. Domestic consumers had also purchased largely. As shipments are to be made from month to month, and as it costs only five cents per ton per month to carry a stock, a dealer could take care of it for four or five months at the cost of one advance. Some shrewd dealers have done this, but they are few, and they will reap a profit later. As to prices, we are told that they are adamantine, but from what we learn prices are and have been shaded within the past two weeks. At Milwaukee, where the shippers' coal docks displayed great activity a year ago, there are now no signs of any movement of anthracite, but shippers are laying in large stocks in view of future demand.

There is no question whatever that some of the shippers' agents here are making contracts with certain dealers guaranteed for the year at June prices and even better, in yards or on cars, good until next May or June. The position of the Philadelphia & Reading in refusing to do this for their customers has antagonized a good many dealers here and where they cannot take a contract for 300 to 1,000 tons of anthracite for the year, they are turning the contracts over to other shippers than the Philadelphia & Reading. There is a good deal of ill-feeling against the Philadelphia & Reading for holding so rigidly to their agreements, while the side issues of some of the other companies are going it wild. We also hear of some deliberate cuts on grate coal in a retail way owing to the loophole left by "actual cartage."

It is also charged that certain parties are showing in their offices samples of small egg, and are telling prospective customers that it is the size of grate *this* year. This is conclusive evidence of the general disposition to cut by shippers other than the combine.

Vessel coal continues to come forward in good shape and a number of boats have been detained in harbor, the current in the Chicago River preventing them from going up to docks.

Bituminous coal is very dull and supply heavy and it seems to be very hard to move. Many of the mine owners and operators here are restricting shipments, the effects of which will be seen later. Lake shipments of Hocking are large both to Michigan and Superior points. Circular prices are shaded on nearly all grades.

Coke is very dull, foundries running light and competition very keen. Prices on all grades but straight basin Connellsville are shaded.

Quotations are: $4.65 furnace; $5.05 foundry, crushed; $5.40 Connellsville; West Virginia, $3.90 furnace, $4.10 foundry; New River foundry, $4.75; Walston, $4.65 furnace, $5 foundry.

Circular prices are at the following rates: Lehigh lump, $6.50; large egg, $5.60; small egg, range and chestnut, $5.85. Retail prices per ton are: Large egg, $6.75; small egg, range and chestnut, $6.75.

Prices of bituminous per ton of 2,000 lbs., f. o. b. Chicago, are; Pittsburg, $3.15; Hocking Valley, $3; Youghiogheny, $3.25; Illinois block, $1.90@$2; Brazil block, $2.35.

(Special by Telegraph.)—A contract for 20,000 tons of Chicago large egg to the city water works was made at $5.58, delivered by team. This would indicate bad faith on part of the coal contractor.

Pittsburg. June 30.

(From our Special Correspondent.)

Coal.—On Saturday the Ohio River took a sudden and unexpected rise. The result was all the light barges were sent out, conveying to the lower markets 800,000 bushels. The Southern and Western points have a sufficient stock on hand to last late in the fall. Prices are unchanged.

Connellsville Coke.—We have no particular change to note regarding the situation. The outlook at present is peculiar. The prospect of a big iron strike is not considered favorable for the coke regions, as the general impression is it will paralyze the coke business. It is again reported that a further reduction of about 10c. per ton in the rates of freight on coke is contemplated by the railroads. Production and output are about stationary. The average in the running order of the active ovens is being well kept up. The McClure Coke Company made full six days at all its active plants. Shipments for the week, 112,806 tons, against 112,302 tons the previous week. Shipments distributed as follows: To Pittsburg, 1,757 cars; points east of Pittsburg, 1,350 cars; points west of Pittsburg, 3,160: total, 6,085. Western shipments gained 172 cars; Eastern shipments decreased 46 cars, and Pittsburg shipments decreased 98 cars, leaving a total increase of 28 cars. Prices are unchanged.

METAL MARKET.

NEW YORK, Friday Evening, July 1st, 1892.

Prices of Silver Per Ounce Troy.

June.	Sterling Exch'ge.	London. Pence.	N. Y. Cents.	Value of £1.	June.	Sterling Exch'ge.	London. Pence.	N. Y. Cents.	Value of £1.
25	4.88	40⅜	87⅝	.677	29	4.88	40 3/16	87½	.676
27	4.88	40¼	88	.680	30	4.88	40⅜	87⅝	.677
28	4.88	40 5/16	88	.680	July 1	4.88	40 3/16	87⅞	.679

The silver market has been quiet and steady. No unusual features have developed. There is an entire absence of speculation, and since the government has been out of the market the metal has been seeking its natural or commercial channels.

The United States Assay Office, at New York, reports the total receipts of silver for the week at 87,000 ounces.

Gold and Silver Exports and Imports at New York.

	Exports. Week ending June 25.	Exports. Since Jan. 1.	Imports. Week ending June 25.	Imports. From Jan. 1.
Gold	$5,282,545	$39,699,147	$94,119	$6,262,223
Silver	157,145	11,031,156	84,625	790,821
Totals	$5,439,690	$50,730,303	$178,744	$7,053,044

The gold shipped this week amounts to $5,500,000, the silver, $357,780.

The exports and imports for the corresponding period of 1891 were; exports: gold, $68,296,721; silver, $7,223,194; imports: gold, 1,697,766; silver, $843,379.

Almost all of the gold exported the last week went to Germany, but present advices state that the exchange rate has been reduced and this will stop the exportation to that country.

It is rumored that Russia is again buying gold. If it be true the large exports of last year may be repeated, but there is every reason to believe that the outward movement of gold has come to an end, and that ere long a large quantity will return to this country. The present heavy shipments can not continue in face of the large excess in our merchandise exports over imports. Last year the excess of exports over imports for the first five months of the year were only $2,600,000; this year the excess is $54,600,000 for the same period.

These figures prove conclusively that foreign countries are selling out their holdings of our securities to obtain gold, and it is equally certain that they are selling at a low price what they will eventually buy at a high price.

There is another feature of the gold movement to which little attention has been paid, viz., that we are liquidating our foreign debt. If it be true that Europe is on the verge of a great war, our securities will eventually be sought for by foreign investors as affording less risk than those of their own countries.

However, there is another side to the gold movement, and it is one whose effect can with difficulty be estimated, namely, that foreign holders of our securities fear that we may adopt the free coinage of silver. If this belief exists it is easy to understand why foreign investors dispose of our securities before the inevitable financial crash that would certainly follow the adoption of such a policy overtakes them.

Domestic and Foreign Coin.

The following are the latest market quotations for the leading foreign coins:

	Bid.	Asked.
Mexican dollars	$ .68	$ .69
Peruvian soles and Chilian pesos	.65	.67
Victoria sovereigns	4.90	4.93
Twenty francs	3.90	3.93
Twenty marks	4.75	4.78
Spanish 25 pesetas	4.79	4.81

Copper has lost more ground, if anything, values having again perceptibly weakened both here and abroad. That the market here should not maintain values is largely to be attributed to the absence of orders of consequence from abroad, and as we here cannot take care of the entire production it is but natural that there should be an accumulation of stocks, which, at the present time is very dangerous to prices, as business in the copper line generally is not very brisk. It is true that consumption for electrical purposes is still quite good, but to offset this, manufactures have supplied their wants for some time to come, and, in addition, the demand in all other branches leaves a good deal to be desired.

Lake copper for shipment from the Lakes is quoted at 11¾, but for a little lot of Lake ingot copper, which had been hawked all around the market for some time, 11½, the best bid secured, had to be accepted. Casting copper also is easier and selling at about the equivalent of 10¾ at the smelting works. Arizona pig, which has right along been the strongest of all grades of copper, has had to submit to general conditions, and is now to be quoted at 9⅞@10c.

The foreign market has been rather inactive. The fluctuations have not been very large, and noticeably in the direction of lower values. G. M. B's, which closed last week at £45 2s. 6d. for spot and £45 10s. for three months, close to-day at £44 12s. 6d.@15c. for spot and £45 5s.@7s. 6d. for futures, the increase in visible supplies of copper amounting to 1,000 tons for the month of June. For manufactured sorts we quote: English tough, £46 10s.@£47; best selected, £49@£49 5s.; strong sheets, £54@54 10s.; India sheets, £52@52 5s.; yellow metal, 5¼d.

The exports of copper from the port of New York during the past week were as follows:

To Liverpool—	Copper Matte.	Lbs.	
S. S. Halley	3,102 bags	363,671	$25,000
" Aurania	2,157 "	200,224	12,000
To Havre—	Copper.	Lbs.	
S. S. La Touraine	458 casks	155,076	$16,283
To Rotterdam—	Copper.	Lbs.	
S. S. Obdam	216 pigs	76,872	$7,900

Tin has, during the week, again absorbed most of the attention, the market having been subject to quite considerable changes, as from the closing figure of 21·75 for spot and 21·90 for later delivery the values declined to 21·10 and 21·50, respectively, recovering only this afternoon and closing at 21·20 and 21·60. The decline in prices has been due, first of all, to the lower market abroad, and then to the persistent realizations by one firm, identified as holding the key to the situation here. However, the buying by the jobbers at the lowest prices was better than for some time past, it being confidently expected that the market will, at an early date, recover sufficiently to show a good profit on present purchases. Inasmuch as the situation as regards the future remains unchanged from that outlined in our issue of June 11th, it would seem that present prices should deserve a great deal of attention, as with the prospective duty of 4c. the market must necessarily advance long before that becomes operative. Shipments from the East are as far as ever behind last year's figures. London has followed much the same course, and against last week's closing figures of £101 5s. and £99 15s. for spot and futures respectively, we have to-day's closing values of £99 7s. 6d. and £98 2s. 6d.

Lead.—The demand has been a little better and prices have, in consequence, improved to $4.20, but purchases are limited to what is needed for immediate wants. The London market, contrary to this, has gone off 2s. 6d., and is to-day quoted at £10 7s. 6d. for Spanish and £10 10s. for English lead.

Chicago Lead Market.—The Post-Boynton Strong Co. telegraph us as follows: "Pig lead has been very strong during the past week and sales have been made of some 800 tons of desilverized, at 4.15c., principally for July delivery. The consumptive demand is increasing and from present outlook is likely to continue. All the refiners are strong and ask 4.16½."

St. Louis Lead Market.—The John Wahl Commission Company telegraph us as follows: Lead is strong and moderately scarce, spot obtainable lightly at 4.05c. Futures are generally held at 4.10c.

Spelter continues in good demand, in sympathy with the continued improvement in the galvanizing trade. However, values do not appear to be quite so firm as they have been of late, the pressure to sell for forward deliveries coming from the smelters having proved too great. The market must be quoted 4·75 for July and 4·70 for the balance of the year.

As to the European market, it has been subject to wide fluctuations, the market having during the week declined to nearly £21 on rumors that the combination which had existed, having for its object the maintenance of prices at £23 10s., had been dissolved, but later on, when it was found that it had been continued, although not on the old basis, but at £22 until the end of September, the market recovered until it reached that figure, but has since receded to £21 16s. 3d. for good ordinaries and 2s. 6d. more for specials.

Antimony is quiet: Cookson's at 14½; Hallett's at 11⅛, and L. X. at 12¾.

Nickel, on reports from abroad that are favorable, is firmer at 60@62½c.

IRON MARKET REVIEW.

NEW YORK, Friday Evening, July 1, 1892.

Pig Iron.—The following tables give the estimated output of the blast furnaces for the week ending Saturday, June 18th, 1892, and for the first 24 complete weeks of the year 1892 up to and including June 16th, together with the output of the week ending Saturday, June 17th, 1891, and for the first 24 complete weeks of the year 1891 up to and including June 15th, 1891:

ESTIMATED OUTPUT OF BLAST FURNACES FOR WEEKS ENDING JUNE 18TH, 1892, AND JUNE 17TH, 1891.

	Anthracite.		Coke.		Charcoal.		Total.	
	No. of furnaces in blast.	Output in gross tons.	No. of furnaces in blast.	Output in gross tons.	No. of furnaces in blast.	Output in gross tons.	No. of furnaces in blast.	Output in gross tons.
1892..	78	34,400	141	128,000	46	11,400	265	173,800
1891..	92	36,900	126	99,700	45	10,600	263	147,200

ESTIMATED OUTPUT OF BLAST FURNACES IN 1892 AND 1891 FOR FIRST 24 WEEKS UP TO JUNE 16TH AND JUNE 15TH, RESPECTIVELY.

	Anth'cite. Gross tons.	Coke. Gross tons.	Charcoal Gross tons.	Total. Gross tons.
To June 16th, 1892	898,600	3,293,900	255,900	4,448,300
To June 15th, 1891	908,600	2,036,700	265,900	3,210,300

The absorbing topic of interest this week in the iron trade is the war between labor and capital at the Carnegie Homestead Mills. On Thursday evening the firm gave their men formal notice of discharge to take effect on Saturday and so anticipated any action on the part of the Amalgamated Association. The number of men thrown out of employment is 4,000. Though by this time the point at issue between masters and men is generally well known throughout the trade it may be as well just to mention it briefly. The proposition of the Carnegies was that wages should be governed by the selling price of steel billets, that when steel billets sold at $22 per ton or less the minimum rate should be paid and that this agreement should expire December 31st. The men claimed that the proposed change in the minimum basis from $25 to $22 per ton would cause a reduction in wages from 20 to 60% and that the change of date of expiration of the scale would be to their disadvantage, as they would not be able to contend as strongly for their rights in January as in July. The preparations made by the Carnegies indicate that they have no intention whatever of giving way an inch. The men are equally determined and they will hold out as long as they are physically able. The works will probably be closed for two or three months and then the men will give in and accept the proposed reduction. From all accounts it appears likely that the majority of the other iron works in the West will accept the scale of the Amalgamated Association in its entirety, or in a somewhat modified form, so that the strike will not be so extensive as to affect the state of trade generally. We may expect, therefore, that Eastern pig iron manufacturers will soon conclude that nothing can be expected to follow from the Western troubles in the shape of improved prices or a firmer market for their production, and that they will consequently soon take the step they have contemplated for some time, viz., to lower the schedule rates for pig iron by a dollar. This reduction will really not be such an important event as some might think, for the schedule rates have been cut considerably for many months past, though neither the sellers nor buyers cared to confess it. The present prices of pig iron f. o. b. at tidewater are: No. 1 X, $16; No. 2 X, $15; gray forge, $14. The new prices will be probably $1 less all round.

Spiegeleisen and Ferromanganese.—The new business in both speigeleisen and ferromanganese has been microscopic during the past week, and no regular sales are reported. It is said that an odd lot of ferromanganese has been and is still on offer from an outsider at $59.

Steel Rails.—The transactions on steel rails during the week do not include any item of importance. Prices are the same, viz., $30 at mill and $30.75 tidewater.

Rail Fastenings.—The prices in this market are as follows: Fish and angle plates, 1·55@1·65c. at mill; spikes 1·90@2c.; bolts and square nuts, 2·50@2·70c.; hexagonal nuts, 2·70@2·80c., delivered. The market is dull. The New York City Bolt and Nut Company, Limited, have gone into voluntary liquidation, as they say there is no money in the business in nuts and bolts for machinery. They blame the McKinley tariff for a decrease on the export of machinery from the States. They are not going to wind up their business entirely, but will divert their capital to other manufactures.

Merchant Iron and Steel.—We have no alteration in the market for merchant steel. The prices are: Mushet's special, 48c.; English tool steel, 15c. net; American tool steel, 6½@7½c.; special grades, 13@18c.; crucible machinery steel. 4·75c; crucible spring, 3·75c.; open hearth machinery, 2·25c.; open hearth spring, 2·50c.; tire steel, 2·25c.; toe calks, 2·25@2·50c.; first quality sheet, 10c.; second quality sheet, 8c.

Tubes and Pipes.—There is nothing new to be reported in tubes and pipes. The ruling discounts are as follows: Butt, black, 57½%; butt, galvanized, 47%; lap, black; 67%; lap, galvanized, 55%; boiler tubes, from 3 in. to 6 in., 60%; above 6 in. and below 3 in., 55%.

Structural Material.—No alterations in prices are to be reported this week. Prices stand as follows: Beams, 2·25@2·65c.; angles, 1·85@2·10c.; sheared plates, 1·90@2·10c.; tees, 2·40@2·60c.; channels, 2·35@2·50c.; universal plates, 2@2·10c., bridge plates, 2@2·10c. on dock. The strike of the housesmiths, to which we referred last week, has not reached a serious point yet, but work on many buildings has ceased, and the men are endeavoring to call out the allied trades. Contracts for 1,200 tons of material for two new buildings have been given out during the week. Contracts have also been given out for two new works at Garwood, N. J., one for the American Steel Car Wheel Company, and the other for the Hall Signal Company. These contracts have gone to a Connecticut and an Elizabeth firm respectively. The Pittsburg labor difficulties will not alter the condition of the market here, as the iron mills take no part in the strike.

Buffalo. June 29.

(Special report by Rogers, Brown & Co.)

The past week has shown a fair volume of business, rather better than the average of the past few months, but below the normal.

Prices have been maintained in all lines, except certain brands of Southern iron, which are apparently forcing sales. The large season purchases for Lake Superior charcoal iron appear to be about completed now, and such business as is going is for small lots of favorite brands to complete mixtures. The range of the market is about as follows, although some of these figures have been shaded for large transactions: No. 1 X Foundry Strong Coke Iron Lake Superior ore, $15.75; No. 2 X Foundry Strong Coke Iron Lake Superior ore, $14.75; Ohio Strong Softener No. 1, $15.75; Ohio Strong Softener No. 2, $14.75; Jackson County Silvery No. 1, $18; Jackson County Silvery No. 2, $17; Lake Superior Charcoal, $16.50; Tennessee Charcoal, $17; Southern Soft No. 1, $14.65; Alabama Car Wheel, $19; Hanging Rock Charcoal, $20.50.

Chicago. June 30.

The continuous and almost unprecedented rains during the past week have wrought an immense amount of damage. Lumber and marine interests are not the only sufferers; huge elevators are badly crippled, water filling their hoisting pits; brick yards and clay pits are inundated, and thousands of skilled mechanics and laborers have been temporarily laid off. This, though having no direct effect on the iron and steel market at present, may affect demand later on. The feature of the week in crude iron has been the large inquiry and demand for Lake Superior charcoal iron; some sales were consummated and more will follow. The increase in stocks at furnace of this specialty will, it is now believed, cause a weakening in price before many days, as a number of orders are still in abeyance. There has been a fair amount of business done in local coke iron at prices which indicate that no concessions were obtainable beyond those made several weeks ago. Plates are quiet and will continue so until the boilermakers' strike is ended. Structurals are in good demand, but prices are no stronger. Bars and sheets are active and no trouble is expected from mills in this vicinity when the milling scale comes up for signature. Western implement makers were never so well cleaned out of stock as they were last season; their percentage of cash sales were larger and as a consequence their purchases of material this year have been exceptionally large. In a general way the condition of the iron market is better in regard to demand than it has been for some time.

Pig Iron.—Demand for and sales of Lake Superior charcoal iron have been the features of the week. A number of good sized lots for scattered delivery for three to six months have been made at $16.50 and several for cash and prompt shipment at $16.25, and a 1,000 tons delivery extending over four months was booked at $16.75. The outlook so far as regards tonnage is better than it has been at any time this year; prices, however, will remain low. Some surprise is expressed that in view of the favorable underlying conditions for local coke iron, prices do not become stronger, and it is explained that the pressure from outside furnaces keeps them on a low basis. It is true that there is not much margin for profit in pig iron as sold at present, but with constantly improved methods of manufacture and some slight gains in cost of raw material, they are probably doing a little better than keeping even. There is still some business to be taken for local iron, and while furnaces are keen in their competition there are prices from which none of them will recede. This was shown quite plainly on a recent order taken in this market which was bid for by several furnace companies, and none of the figures showed a greater difference than 10c. a ton.

Quotations per gross ton f. o. b. Chicago are: Lake Superior charcoal, $16.50@$17; Lake Superior coke, No. 1, $14.50@$15; No. 2, $14@$14.25; No. 3, $13.75@$14; Lake Superior Bessemer, $16.50; Lake Superior Scotch, $15.50@$16; Ameri-

can Scotch, $17@$17.50; Southern coke, foundry No. 1, $14.75; No. 2, $14.25; No. 3, $13.75; Southern coke, soft, No. 1, $13.50; No. 2, $13.10; Ohio silveries, No. 1, $17; No. 2, $16.50; Ohio strong softeners, No. 1, $17; No. 2, $16.50; Tennessee charcoal, No. 1, $17; No. 2, $16.50; Southern standard car wheel, $20@$21.

Steel Billets and Rods.—The demand is increasing for steel billets for future wants and the price is firm at $24.50. Inquiry for rods is very good; the Joliet Mills are running on full capacity and the price is steady at $34.50.

Structural Iron and Steel.—The demand is active and several large contracts will probably be closed this week for beams, channels and steel column work. Bridge material is also in good inquiry, but prices show no improvement. Regular quotations, car lots f. o. b. Chicago, are as follows: Angles, $1.80@$2; tees, $2.20@$2.30; universal plates, $1 95@$2; sheared plates, $1.95@$2; beams and channels, $2.05@$5.25.

Plates.—Outside demand has been stimulated by the continuance of the boilermakers' strike. All the shops here are doing something with reduced help, but local business is inactive. Steel sheets, 10 to 14, $2.30@$2.40; iron sheets, 10 to 14, $2.20@$2.30; tank iron or steel, $2.10@$2.15; shell iron or steel, $2.75@$3; firebox steel, $4.25@ $5.50; flange steel, $2.75@$3.00; boiler rivets, $4.00@$4.15; boiler tubes, 2¾in. and smaller, 57½%; 7 in. and upward, 67½%.

Merchant Steel.—The season is now at its height for implement makers' contracts. A large number aggregating a heavy tonnage were closed last week and more to follow. Implement makers have regained confidence with the improved crop outlook, and are ordering in as large quantities as they did last season, which was the heaviest on record. We quote: Tool steel, $6.50@$6.75 and upward; tire steel, $2.10@$2.20; toe calk, $2.40@$2.50; Bessemer machinery, $2.10@$2.20; Bessemer bars, $1.75@$1.80; open hearth machinery, $2.40@$2.60; open hearth carriage spring, $2.25@$2.30; crucible spring, $3.75 @$4.

Galvanized Sheet Iron.—The market is strengthened by the fact that leading sizes are hard to get, and further scarcity may develop before the annual shut-down. Discounts are 70 and 5% on mill lots, and 70% off on Juniata, and 70 and 5% off on charcoal from warehouse. An extra 2½% is given on large orders.

Black Sheet Iron.—More activity is noticed, and some mills are full of work for 60 to 90 days. Prices have perceptibly hardened. Quotations are firm at 2·85 @2·90c. basis of No. 27 Chicago, for delivery before July 1st. Steel sheets are 10c. higher. Dealers quote 3·10@3·20c. from stock same gauge.

Bar Iron.—Several car iron contracts were closed this week, one for 1,000 tons and a few for smaller amounts. Mills in this vicinity quote 1·55c., base half extra, and Valley Mill agents, 1·58@1·63c., according to specification. Quotations from warehouse are 1·70@1·80c.

Nails.—Wire nails are in limited demand, and mill quotations are irregular at $1.65@$1.70 base, Chicago. The jobbing price is the same. Steel cut are more active, and car lots are $1.65, Chicago, and $170 in less quantities from stock.

Steel Rails.—There is little demand for anything but small lots; quotations are unchanged at $31@$32 for heavy sections. A mill order for 400 tons of angle bar fastenings was given out last week, and the demand was more active for small lots at $1.70 for iron or steel splice bars; spikes, $2.05@$2.15 per 100 lbs.; track bolts, hexagonal nuts, $2.65; square, $2.55.

Scrap.—Sales are limited to car loads, and prices remain nominal. No. 1 railroad, $15: No. 1 forge, $14; No. 1 mill, $10.50; fish plates, $18; axles, $21; horseshoes, $16.50; pipes and flues, $7; cast borings, $6.50; wrought turnings, $9; axle turnings, $10.50; machinery castings, $10; stove plates, $8.50; mixed steel, $10.60; coilsteel, $14; leaf steel, $15; tires, $15.

Old Material.—Two thousand tons of iron rails were sold at $18.25, which is considered a good price, as consumers offer only $17.75. Old steel rails and car wheels are inactive at $12.50@$13.50 for the former, and about $15 for the latter.

Louisville. June 25.

(Special Report by Hall Brothers & Co.)

Substantially the market is as last reported, orders having been entered for lots from car loads to 500 tons coke iron, and 300 to 500 tons car wheel iron at about same figures as last week. There are many feeling the market by making inquiries for 500 and 1,000 tons, but when the orders are placed they are cut down to 200 or 300 tons, and some conclude not to buy. Some are of the opinion that the bottom has been reached while others think it will go lower. We quote as last.

Hot Blast Foundry Irons.—Southern coke No. 1, $14@$14.25; Southern coke No. 2, $13@$13.25; Southern coke No. 3, $12.75@$13; Southern charcoal No. 1, $16@$17; Southern charcoal No. 2, $15.50@ $16; Missouri charcoal No. 1, $17@$17.50; Missouri charcoal No. 2, $16.50@$17.

Forge Irons.—Neutral coke, $12.50@$12.75; cold short, $12.25@$12.50; mottled, $11.50@$12.

Car Wheel and Malleable Irons.—Southern (standard brands), $20@$21; Southern (other brands), $18.50@$19.50; Lake Superior, $19.50@ $20.50.

Philadelphia. June 30.

(From our Special Correspondent.)

Pig Iron.—Prices continue to fluctuate in crude iron. In consequence no more business is being done than is sufficient to keep foundries and mills going. There will be very little forge iron melted throughout the next two weeks. Everyone is awaiting developments in the West. There is really nothing to say this week in regard to pig iron, and buyers refuse to talk of large orders. No. 1 Foundry is quoted at $15 to $15.50. No. 2, $14 to $14.50. Forge, $12.50 to $14. The statement made of a reduction of $1 per ton by the Thomas Iron Company has not yet been officially announced, but it is generally understood that it will take place after July 1st.

Muck Bars.—About the best figure paid this week was $24, but the bar was not the very best.

Steel Billets.—A few large lots of steel billets have been taken this week at $24.50. Manufacturers think that stronger prices will certainly prevail after the middle of July. They base this opinion upon the fact that a great deal of business is now coming in calling for billets and buyers have scarcely any stock on hand.

Merchant Iron.—Labor troubles exist at four or five mills, but the office men here say that they will be adjusted in their favor before Saturday, and that work will continue when needed repairs are made. All eyes are turned to Western Pennsylvania. Store-keepers have nearly run out of stocks and are chasing after iron at the mills for prompt delivery in anticipation of trouble. Quotations are 1·65 this week, and there is a slight advance at interior points.

Wrought Iron Pipe.—After two or three months of dullness the wrought iron pipe makers have made a few good sales, though there is no particular rush.

Sheet Iron,—The past week has been an exceedingly good one in all kinds of sheet, both in large and small orders. A few large buyers have begun to anticipate fall requirements, which is a good sign. The repairing in the sheet mills will be very hurriedly done.

Merchant Steel.—There is quite an active demand for certain kinds of merchant steel, and prices for immediate deliveries, it is claimed, are a little higher, though buyers who have bought this week say they have not heard of it.

Plate and Tank Iron.—Big orders have been placed this month, some of them early, and only reported this week. The negotiations were conducted very quietly, and kept out of newspapers; the effect of this has been to harden prices on small lots. It is not at all likely that there will be any general advance, but there is a better feeling, growing out of the disposition to place a good many orders. Steel tank, 1·75; shell, 2·10; flange, 2·30. There is a good deal of business in special qualities of steel, but these orders are all small.

Structural Material.—Two or three big orders were suddenly placed this week, and there are negotiations pending for large amounts, which the structural iron people do not give in figures. There is a better feeling this week than for a good while past. The talk now is that a large amount of business will be placed in July, and it certainly looks as though the anticipations of manufacturers would be realized. Bridge plates, 1·80; beams, 2·10.

Steel Rails.—Negotiations are being conducted by New York financiers which, if terminated all right, will result in the placing of orders during July and August for some thirty or forty thousand tons of rails for roads in the West. It is uncertain just where the orders will go to, but it is probable the Illinois Mills will catch a good many of them. Quotations, $30.

Old Rails.—Market quiet; quotations $19.50. Steel, $16. Scrap, No. 1. $17.50.

Pittsburg. July 1.

(From our Special Correspondent.)

Iron and Steel.—We have again to report an unsettled market. Prices irregular and uncertain, caused by the situation of the labor question. The Homestead shut-down went into effect June 30. There were 3 000 idle tonnage men on the streets this morning, and they have invited the mechanical department, day laborers and watchmen to join them on the following day. They expect that the men will do so, and if they do, the entire plant will be idle. The firm discharged all the employés at midnight, and directed them to report for their pay at the office on Saturday. By this actiou the Carnegie's have forestalled the men, and by making it a lockout instead of a strike have placed them on the defensive. The streets are crowded, but everything is quiet. As predicted, the sheet-iron manufacturers and Amalgamated Association succeeded in settling their differences at a conference held on the 29th inst.; mutual concessions were made. The settlement affects about 25 companies and 10,000 men. The Oliver & Roberts Wire Nail Company signed the scale this morning. The firm employs 300 men.

During the lockout every means possible will be used to preserve peace, and this end is desired by both the mill-workers and the Carnegie Company. The Amalgamated Association has sworn in twenty extra men to do police duty without pay, and the company has added a number of watchmen to protect their property. It is thought the latter are well armed and will keep a sharp lookout day and night.

The scales under which the members of the Amalgamated Association have been working for the last year expired at midnight, with a condition of affairs confronting both manufacturers and workers that has not occurred in recent years. The scale to govern wages in the iron and steel mills employing union men for the year beginning to-morrow remains not alone unsigned, but exhibits such a wide divergence in the prices demanded by each side as to place the settlement far off, and make it probably difficult to arrive at. The majority of the mills will shut down for repairs, and two weeks will elapse before any attempt at beginning operations again will be made. Firms employing 12,000 had signed the scale on the 30th ult.

The iron men of the Mahoning and Shenango Valleys are united in their demand for a reduction in the price of wages. During the past few weeks prices of iron in the valleys have been well maintained, and several large blocks of Bessemer and gray forge have changed hands. There is a rumor in the air that railroad freights will be reduced in the near future. Should this prove correct it will assist the iron men very materially. Most of the Valley furnaces are running to their full capacity. There is a large amount of iron stocked up. This don't seem to give the furnacemen much anxiety; they seem to have an abiding faith that before the year is out there will be a demand for all they have at better prices than is now current. Faith is a good thing, and we sincerely hope they will not be disappointed, for present prices are down to a very low figure.

Reports in regard to general business are very contradictory. It seems almost impossible to say what the actual condition of the market is; while certain firms are crowded with work, others say they barely get enough to keep things moving; and the fact that prices are low and unremunerative is pretty good evidence that there is not much room for boasting. Nevertheless, there is evidently a better feeling, and, taking everything into consideration, there are good reasons for believing that the last half of the year is likely to be much better than the one now closed.

As regards values we have little change to note. After this week a number of mills will close for repairs. It is to be hoped that when they are ready to resume operations matters in regard to wages will be satisfactorily arranged. Bessemer Pig, $14 @$14.25; Grey Forge, $12.65@$12.75; White Iron, $12. Steel billets firm, $23.75@24, according to delivery. Muck bar dull, not wanted to any extent. Steel wire rods, prices maintained. Skelp iron and steel in fair demand, prices steady. Scrap material and old iron rails very dull; lower.

Standard Bessemer Ore.

25,000 Tons Standard Bessemer Ore, at Cleveland Dock ..... $400 cash.

Coke Smelted Lake and Native Ores.

5,000 Tons Bessemer City Furnace, July, August, September ..... $14.15 cash.
5,000 Tons Bessemer, July August, September, 14.00 cash.
5,000 Tons Grey Forge, August, Sept., Oct... 12.65 cash.
4,000 Tons Grey Forge, July, Aug., Sept., Oct . 12..5 cash.
3,000 Tons Bessemer, July, August, September, 14.00 cash.
1,500 Tons Bessemer, July, August, September, 14.00 cash.
1,500 Tons Bessemer, August, Sept., Oct..... 14.0c cash.
1,000 Tons Grey Forge..... 12.75 cash.
1,000 Tons Bessemer..... 14.00 cash.
1,000 Tons Bessemer, July, August..... 14.00 cash.
1,000 Tons Grey Forge, August, September.... 12.65 cash.
1,000 Tons Grey Forge, Valley Furnace..... 12.75 cash.
500 Tons Bessemer..... 14.15 cash.
500 Tons Grey Forge..... 12.65 cash.
500 Tons Grey Forge..... 12.75 cash.
200 Tons No. 1 Foundry, City Furnace..... 15.00 cash.
200 Tons No. 2 Foundry, City Furnace..... 14.00 cash.
150 Tons No. 1 Silvery..... 16.75 cash.
100 Tons No. 2 Silvery..... 15.25 cash.
50 Tons No. 3 Foundry..... 13.25 cash.
50 Tons White Iron..... 12.00 cash.

Steel Slabs and Billets.

1,500 Tons Steel Billets and Slabs, prompt..... 23.50 cash.
1,500 Tons Steel Billets, prompt..... 24.00 cash.
1,500 Tons Steel Billets, delivered..... 24.25 cash.
1,000 Tons Steel Billets, prompt..... 24.00 cash.
1,000 Tons Steel Billets, prompt..... 24.00 cash.
500 Tons Steel Billets, delivered..... 24.25 cash.
500 Tons Steel Billets..... 23.75 cash.

Muck Bar.

500 Tons Neutral ..... 24.75 cash.
500 Tons Neutral, prompt..... 24.85 cash.
300 Tons Neutral..... 24.75 cash.
180 Tons Neutral, July..... 24.75 cash.

Charcoal.

150 Tons Cold Blast ..... 26.00 cash.
100 Tons Cold Blast ..... 26.50 cash.
75 Tons Cold Blast..... 26.00 cash.
50 Tons No. 2 Foundry..... 2,000 cash.

Ferro-Manganese.

150 Tons 80%, Seaboard..... 59.00 cash.
50 Tons 80%..... 59.00 cash.

Steel Wire Rods.

700 Tons American Fives, August... ..... 32.25 cash.

Iron. Skelp.

500 Tons Narrow Grooved..... 1.60 4m
460 Tons Sheared Iron..... 1.80 4m
300 Tons Wide Grooved..... 1.62½ 4m.

Steel, Skelp.

500 Tons Wide Grooved..... 1.45 4m.
350 Tons Narrow Grooved..... 1.50 4m.

Spelter.

300 Tons Spelter..... 4.72½ cash.
100 Tons Spelter..... 4.70 cash.
100 Tons Spelter..... 4.75 cash.

Old Iron and Steel Rails.

1,000 Tons American Ts..... 20.00 cash.
500 Tons Old Steel Rails..... 15.50 cash.
200 Tons Old Steel Rails..... 15.75 cash.

Scrap Material.

200 Tons Cast Iron Borings, gross..... 7.50 cash
500 Tons No. 1 W. Scrap, net..... 14.50 cash
100 Tons No. 1 W. Scrap, net ..... 14.60 cash.
50 Tons Wrought Turnings, net..... 11.50 cash.

NEW YORK MINING STOCKS QUOTATIONS.

DIVIDEND-PAYING MINES.

NAME AND LOCATION OF COMPANY.	June 25.		June 27.		June 28.		June 29.		June 30.		July 1.		SALES.
	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	
Adams							.90						100
Alice, Mont													
Amador													
Atlantic, Mich													
Belcher, Nev													
Belle Isle, Nev									.05	.04			1,300
Bodie Cons., Cal			.20		.15		.17						300
Bos. & Mont., Mont													
Breece, Colo	.38												100
Bulwer, Cal			.40										300
Caledonia, S. Dak											.80		200
Catalpa													
Chrysolite, Colo	.16						.18						500
Colorado Central, Colo													
Commonwealth, Nev													
Comstock T. bonds, Nev													
" scrip., Nev													
Cons. Cal. & Va., Nev			3.50		3.50	3.35	3.50		3.65				370
Crown Point, Nev													
Daly													
Deadwood, Dak													
Eureka, Cons													
Father de Smet	.30												100
Freeland, Colo													
Gould & Curry, Nev													
Grand Prize													
Hale & Norcross, Nev					1 40		1 50		1.40				300
Homestake, Dak													
Horn Silver, Utah	3 35												200
Independence, Nev													
Iron Hill													
Iron Silver													
Leadville Cons., Colo													
Little Chief, Colo	.26				.25				.26				900
Martin White													
Moulton													
Mt. Diablo, Nev													
Navajo, Nev													
N. Belle Isle, Nev													
Ontario, Utah													
Ophir, Nev											1.75		150
Overman													
Plymouth, Cal													
Quicksilver, Pref., Cal													
" Com., Cal													
Quincy, Mich													
Robinson Cons., Colo	.45		.43								.35		600
Savage, Nev					1.50								150
Sierra Nevada, Nev											.85		100
Silver Cord, Colo							.35						1,700
Silver King, Ariz													
Small Hopes													
Standard					1.70		1.75	1 60			1 60		900
Ward Con													
Yellow Jacket, Nev													

NON-DIVIDEND-PAYING MINES.

NAME AND LOCATION OF COMPANY.	June 25.		June 27.		June 28.		June 29.		June 30.		July 1.		SALES.
	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	
Alpha													
Alta													
American Flag, Colo													
Andes, Cal													
Astoria, Cal					.02								1,000
Augusta, Ga													
" bonds													
Barcelona, Nev									.14				100
Belmont, Cal	.39				.38		.38		.38		.38		800
Best & Belcher, Nev											1.50		100
Bonanza King, Cal													
Brunswick, Cal	.15		.16	.12	.15	.13	.14	.13			.13	.12	2,100
Bullion, Nev													
Butte & Bost., Mont													
Castle Creek, Idaho	.03				.02								900
Challar													
Comstock T., Nev	.12												1,000
Con. Imperial, Nev													
Con. Pacific, Cal													
Crescent, Colo													
Del Monte, Nev													
El Cristo, Rep. of Col	.40	.35							.40	.35			400
Emmett													
Exchequer, Nev													
Hollywood, Cal													
Julia													
Justice													
King & Pembroke													
Lacrosse, Colo													
Lee Basin, Colo													
Mexican, Nev													
Middle Bar, Cal				.03									500
Monitor, Colo													
Mutual S. & M. Co., Wash													
Nevada Queen, Nev													
N. Standard, Cal													
N. Commonwealth, Nev													
Occidental, Nev													
Oriental & Miller													
Phœnix Lead, Colo													
Phœnix of Ariz													
Potosi, Colo													
Rappahannock, Va													
S. Sebastian, S. Sal													
Santa Fe, N. M													
Scorpion, Nev													
Seg. Belcher, Nev													
Shoshone, Idaho													
Silver Queen													
Sullivan Con., Dak	.88		.88		.90		.91		.92		.94		600
Sutro Tunnel, Nev													
Syndicate													
Tornado Con., Nev													
Union Cons., Nev													
Utah, Nev													

•Ex-dividend. †Dealt in New York Stock Ex. Unlisted securities. ‡Assessment paid. ‖Assessment unpaid. Dividend shares sold, 8,470. Non-dividend shares sold, 7,400. Total shares sold, 15,870.

BOSTON MINING STOCK QUOTATIONS.

NAME OF COMPANY.	June 24.		June 25.		June 27.		June 28.		June 29.		June 30.		SALES.
Atlantic, Mich	10.25	10.00			10.00		10.00	9.00			10.00		355
Bodie, Cal													
Bonanza Development													
Bost. & Mont., Mont	40.00	39.50	39.50	39.25	39.75	39.13	39.50	39.25	39.50	38.50	39.00	37 50	8,517
Breece, Colo													
Calumet & Hecla, Mich					270				270		270		87
Catalpa, Colo													
Central, Mich													
Cœur d'Alene, Id													
Con. Cal. & Va., Nev													
Dunkin, Colo											.25		100
Eureka, Nev													
Franklin, Mich					†123½						12.50	12.25	475
Honorine, Utah													
Horn Silver, Utah													
Kearsarge, Mich			12.00										25
Lake Superior, Iron													
Little Pittsburg, Colo													
Minnesota Iron													
Napa, Cal													
Ontario, Utah													
Osceola, Mich	30.50		30.50	30.25	30.00	29.75	29.50		29.75	29.00	29.00	27.50	1,569
Quincy, Mich													
Ridge, Mich													
Sierra Nevada, Nev													
Silver King, Ariz													
Stormont, Utah													
Tamarack, Mich	165	160			160		160	158			160		147
Tecumseh, Mich													

NAME OF COMPANY.	June 24.		June 25.		June 27.		June 28.		June 29.		June 30.		SALES
Alloues, Mich	.90				.75						.75		300
Arnold, Mich													
Aztec, Mich													
Brunswick, Cal													
Butte & Boston, Mont											12.50	12.00	240
Centennial, Mich			10.00		9.75		9.50						245
Colchis													
Copper Falls, Mich													
Crescent, Colo					.08								100
Dana, Mich													
Don Enrique, N. M													
Geyser													
Hanover, Mich													
Humboldt, Mich													
Hungarian, Mich													
Huron, Mich													
Mesnard, Mich													
National, Mich													
Native, Mich													
Oriental & M., Nev													
Phœnix, Ariz													
Pontiac, Mich													
Rappahannock, Va													
Santa Fe, N. Mex	.10						.11		.10		.10		2,586
Shoshone, Idaho													
South Side, Mich													
Tamarack, Jr, Mich	37.50		35.00	34.00	36.00	35.25	38.10	37.00	38.00	37.50	38.00	36.00	24
Washington, Mich													
Wolverine													

†Ex-dividend. Dividend shares sold, 11,265. Non-dividend shares sold, 3,718. Total shares sold, 14,983.

COAL STOCKS.

NAME OF COMPANY.	June 25.		June 27.		June 28.		June 29.		June 30.		July 1.		Sales.
	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	
Cambria Iron													
Cameron Coal & L Co													
Ches. & O. R. R													
Chic. & Ind. Coal R. R													
Do. pref													
Col. C. & I			34	33⅝	35	34	35¼	34⅝	36	35	36¼	35⅛	7,030
Col. C. & Hocking C. I													
Consolidation Coal									29	28			148
Del. & H. C	157¼						157¾	137⅛	138⅛	137			180
D., L. & W. R. R	157¼	156¾	157⅛	156⅝	158¼	157⅜	158¼	157⅛	157¼	156¼	156⅝	156	16,135
Hocking Valley	36	35⅞	36⅛	35⅜	37⅛	36¾	37⅛	37	37	36¼	36⅛		10,425
do. pref													
Hunt & Broad Top													
Do. pref						54⅞				55⅛	55		65
Illinois C. & Coke Co													
Lehigh C. & N			53¾		53¾		53⅝	53⅛	53⅝	53¼			264
Lehigh Valley R. R	60⅛		60¼		60⅞	60⅝	61	60¾	61	60¾			3,392
Lehigh & Wilk. Coal													
Mahoning Coal													
Do. pref													
Maryland Coal													
Morris & Essex							147		148				97
New Central Coal													
N. J. C. R. R							138¾						115
N. Y. & S. Coal													
N. Y., Susq. & West	14½								14		14¼		300
Do. pref						64½		64½	64½	64			750
N. Y. & Perry C. & I													
Norfolk & West. R. R													
Do. pref			45⅛				45¾	45⅜			45⅜	45	450
Penn. Coal													
Penn. R. R													
Ph. & R. R. R	55⅝		58¼	55⅛	56¾	55⅝	59⅜	56¼	59¼	58¾			2,737
Sunday Creek Coal	60¼	60	60⅝	60	60⅝	60⅛	60⅝	59⅜	60⅜	59⅛	60¼	59⅜	107,956
Do. Pref													
Tennessee C. & I. Co	36½		36½	35	36¾	36⅛			36¾	36¼			1,690
Do. pref							105						100
Westmoreland Coal													

Total shares sold, 151,834.

San Francisco Mining Stock Quotations.

NAMES OF STOCKS.	CLOSING QUOTATIONS. June 24.	June 25.	June 27.	June 28.	June 29.	June 30.
Alpha	.15	.15	.15	.15	.15	
Belcher						
Belle Isle	.05	.05	.05	.05	.05	.05
Best & Belcher	1.60	1.55	1.55	1.55	1.55	1.65
Bodie	.15	.15	.10	.10	.10	
Bulwer	.40	.40	.40	.45	.45	
Challar	.20	.20	.15			.15
Commonwealth						
Cons. Cal. & Va	3.55	3.45	3.20	3.25	3.25	3.45
Cons. Pacific						
Crown Point	.80	.75	.75	.70	.70	.85
Del Monte, Nev						
Eureka Consolidated	2.00	2.00	2.00	2.00	2.00	
Gould & Curry	.65	.60	.50	.55	.55	.70
Hale & Norcross	1.25	1.25	1.35	1.30	1.30	
M. White						
Mexican	1.25	1.30	1.25	1.30	1.30	
Mono	.25	.25	.25			.15
Mt. Diablo	1.20	1.20	1.20			
Navajo	.05	.05	.05	.05	.05	
Nev. Queen	.65	.50	.45	.40	.40	.45
N. Belle Isle		.10	.10	.10		
N. Commonwealth						.45
Ophir	1.60	1.65	1.50	1.40	1.40	1.60
Potosi	.45	.45	.50	.45	.45	.55
Savage	1.40	1.40	1.40	1.40	1.40	1.45
Sierra Nevada	.70	.65	.60	.65	.65	
Union Cons	.80	.80	.70	.70	.70	.90
Utah	.05	.05	.05	.05	.05	
Yellow Jacket	.80	.80	.90	.75	.75	.85

DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par	Assessments. Total levied.	Assessments. Date and amount of last			Dividends. Total paid.	Dividends. Date & amount of last.		
1	Adams, s. l. c.	Colo..	$1,500,000	150,000	$10	*				$637,500	Jan..	1892	.05
2	Alice, s.	Mont.	10,000,000	400,000	25	*				975,000	Nov.	1891	.06¼
3	Alma & Nel Wood., g	Idaho	300,000	30,000	10	*				60,000	Jan..	1889	.50
4	Amador, g.	Cal.	1,250,000	250,000	5	*				31,250	Aug..	1890	.12½
5	American, g	Colo..	3,000,000	300,000	10	*				225,000	Mar..	1892	.05
6	American Belle,s.g.c	Colo..	2,000,000	400,000	5	*				50,000	April	1891	.12½
7	Americ'n & Nettie,g.s	Colo..		300,000						175,000	Mar..	1892	.05
8	Atlantic, c.	Mich..	1,000,000	40,000	25	$280,000	April	1875	$1.00	700,000	Feb..	1891	1.00
6	Argenta, s.	Nev..	10,000,000	100,000	100	335,000	July.	1889	.10	40,000	Feb..	1890	.20
10	Argyle, g.	Colo..	1,000,000	1,000,000	1	*				20,000	Mar.	1892	.01
11	Aspen Mg. & S., s. l.	Colo..	2,000,000	200,000	10	*				700,000	June	1892	.10
12	Aurora, i.	Mich..	2,500,000	100,000	25					455,000	June	1892	1.00
13	Badger, s	Ont...	250,000	50,000	5					37,500	Mar.	1890	.25
14	Bald Butte	Mont.	250,000	250,000	1	*				72,500	Mar.	1892	.03
15	Belle Isle, s.	Nev..	10,000,000	100,000	100	199,000	Dec..	1889	.15	300,000	Dec.	1879	.25
16	Belcher, s. g.	Nev..	10,400,000	104,000	100	3,160,000	May	1892	.25	15,397,000	April	1876	1.00
17	Bellevue, Idaho, s. l.	Idaho	1,250,000	125,000	10	120,000	Dec..	1889	.25	200,000	Jan..	1890	.10
18	Best Friend	Colo.	1,000,000	1,000,000	1	*				90,000	Feb..	1892	.01
19	Bi-Metallic, s. g.	Mont.	5,000,000	200,000	25					1,800,000	Nov.	1891	.35
20	Bodie Con., g. i.	Cal..	10,000,000	100,000	100	550,000	June	1890	.25	1,602,572	April	1885	.50
21	Boston & Mont., g.	Mont.	2,500,000	250,000	10	*				520,000	June	1886	.15
22	Boston & Mont., c. s.	Mont.	3,125,000	125,000	25	*				2,075,000	Nov..	1891	1.00
23	Brooklyn Lead, l. s.	Utah.	500,000	50,000	10					127,000	July.	1887	.05
24	Bulwer, g.	Cal..	10,000,000	100,000	10	130,000	Aug..	1889	.25	185,000	April	1892	.10
25	Bunker Hill & S. s. l.	Idaho	3,000,000	300,000	10	*				150,000	Oct..	1888	.06⅜
26	Caledonia, g.	Dak..	10,000,000	100,000	100	505,000	May..	1885	.15	192,000	Oct..	1890	.08
27	Calliope, s.	Colo..	1,000,000	1,000,000						140,000	Jan..	1891	.00½
28	Calumet & Hecla, c.	Mich..	2,500,000	100,000	25	1,200,000				37,350,000	June	1892	5 00
29	Centen'l-Eureka, s. l.	Utah.	1,500,000	30,000	50					562,500	April	1892	.50
30	Central, c.	Mich..	500,000	20,000	25	100,000	Oct..	1861	.65	1,970,000	Feb..	1891	1.00
31	Champion, g.	Cal..	340,000	34,000	10					89,100	May..	1892	.10
32	Chrysolite, s. l.	Colo..	10,000,000	200,000	50	*				1,650,000	Dec..	1884	.25
33	Clay County, g.	Colo..	200,000	200,000	1	*				56,000	Nov..	1891	.02
34	Cœur D'Alene, s. l.	Idaho	5,000,000	500,000	10					310,000	Nov..	1891	.02
35	Colorado Central, s. l.	Colo..	2,750,000	275,000	10	*				475,000	July.	1892	.05
36	Commonwealth, s.	Nev..	10,000,000	100,000	100	170,000	Nov..	1888	.50	20,000	Nov.	1890	.20
37	Confidence, s. l.	Nev..	2,496,000	24,960	100	1,575,000	Nov..	1891	.75	199,680	April	1889	1.00
38	Cons. Cal. & Va., s. g.	Nev..	21,600,000	216,000	100	108,000	Jan..	1885	.20	3,682,800	Aug.	1891	.50
39	Contention, s.	Ariz..	12,500,000	250,000	50					42,587,500	Dec..	1884	.25
40	**Cop. Queen Con., c.	Ariz..	1,400,000	140,000	10					210,000	Feb..	1889	.50
41	Cortez, s.	Nev..	1,500,000	300,000	05	*				687,000	Mar..	1892	.50
42	Crescent, s. l. g.	Utah	15,000,000	600,000	25	*				228,000	Oct..	1888	.08
43	Crown Point, g. s.	Nev..	10,000,000	100,000	100	2,675,000	Mar..	1892	.50	11,898,000	Jan..	1875	2.00
44	Cumberland, l. s.	Mont.	5,000,000	500,000	10	*				15,000	Nov.	1889	.03
45	Daly, s. l.	Utah.	3,000,000	150,000	20					2,437,500	June	1892	.25
46	Deer Creek, s. g.	Idaho	1,000,000	200,000	5	*				20,000	June	1889	.05
47	Deadwood-Terra, g.	Dak..	5,000,000	200,000	25	*				1,110,000	June.	1892	.05
48	DeLamar, s. g.	Idaho	2,000,000	400,000	5	*				315,000	May..	1892	.25
49	Derbec B. Grav., g.	Colo..	10,000,000	100,000	100	90,000	Dec..	1881	.10	260,000	Aug..	1891	.10
50	Dunkin, s. l.	Colo..	5,000,000	200,000	25	*				390,000	Oct..	1889	.05
51	Elkhorn, s. l.	Mont.	1,000,000	200,000	5	*				₹658,500	Mar.	1892	.50
52	Enterprise, s.	Colo..	100,000	10,000	10	*				450,000	July.	1892	.10
53	Eureka Con., s. l. g.	Nev..	1,000,000	50,000	100	550,000	June	1889	.50	5,017,500	Jan..	1892	.25
54	Evening Star, s. l.	Colo..	500,000	50,000	10	*				1,450,000	Dec.	1889	.25
55	Father de Smet, g.	Dak..	10,000,000	100,000	100	200,000	Nov..	1878	1.00	1,125,000	Dec..	1885	.20
56	Franklin, c.	Mich..	1,000,000	40,000	25	220,000	June	1871		1,100,000	July	1892	2.00
57	Freeland, s. g.	Colo..	5,000,000	200,000	25	*				190,000	July.	1886	.10
58	Garfield Lt., g. s.	Nev..	500,000	100,000	5					90,000	April	1888	.12½
59	Gould & Curry, s. g.	Nev..	10,800,000	108,000	100	4,591,200	June	1892	.25	3,826,800	Oct..	1870	10.00
60	Grand Prize, s.	Nev..	10,000,000	100,000	100	785,000	Jan..	1890	.30	496,000	Mar.	1884	.25
61	Granite, s. l.	Idaho	500,000	500,000	1	*				83,400	Nov.	1890	.02
62	Granite Mountain, s.	Mont.	10,000,000	400,000	25					12,040,000	June.	1892	.20
63	Green Mountain, g.	Cal..	1,250,000	125,000	10	*				212,000	Nov..	1881	.07½
64	Hale & Norcross, g. s.	Nev..	11,200,000	112,000	100	5,478,800	Mar..	1892	.50	1,822,000	Aug.	1888	.50
65	Hecla Con., s. g. l. c.	Mont.	1,500,000	90,000	50					1,815,000	May.	1892	.50
66	Hei'a Mg. & Red, s. l. g.	Mont.	3,315,000	663,000	5	*				197,970	July.	1886	.06
67	***Holmes, s.	Nev..	10,000,000	100,000	100	370,000	May.	1890	.25	75,000	April	1886	.25
68	Homestake, g.	Dak..	12,500,000	125,000	100	200,000	July.	1878	1.00	4,853,750	June.	1892	.10
69	Honorine, s. l.	Utah.	500,000	250,000	2	37,500	April	1889	.05	125,000	Sept.	1887	.05
70	Hope, s.	Mont.	1,000,000	100,000	10	*				233,252	April	1888	.25
71	Horn-Silver, s. l.	Utah.	10,000,000	400,000	25	*				4,500,000	Mar..	1892	.12½
72	Hubert, g.	Colo..	1,000,000	1,000,000	1	*				247,000	Dec..	1889	.00½
73	Idaho, g.	Cal..	310,000	3,100	100					2,353,350	May.	1892	2.00
74	Illinois, s.	N. M..	100,000	100,000	1	*				45,000	April	1889	.20
75	Iron Hill, s.	Dak..	2,500,000	250,000	10	134,000	July.	1889	.03	156,250	Nov..	1887	.07½
76	Iron Mountain, s.	Mont.	500,000	500,000	1	*				175,000	May..	1892	.03
77	Iron-Silver, s. l.	Colo..	10,000,000	500,000	20	*				2,500,000	April	1889	.20
78	Jackson, g. s.	Nev..	5,000,000	50,000	100	237,500	Nov..	1880	.20	60,000	Jan.	1894	.10
79	Kearsarge, c.	Mich..	1,000,000	40,000	25	190,000	Oct..	1887	1.00	80,000	Jan.	1890	2.00
80	Kennedy	Cal..	10,000,000	100,000	10					367,000	May..	1892	15
81	Kentuck, s. g.	Nev..	3,000,000	30,000	100	454,180	Oct..	1891	.15	1,350,000	Dec.	1886	.10
82	La Plata, s. l.	Colo..	2,000,000	200,000	10	*				610,000	Sept.	1882	.30
83	Leadville Con., s. l.	Colo..	4,000,000	400,000	10	*				435,500	Dec..	1891	.03
84	Lexington, g. s.	Nev..	4,000,000	40,000	100	*				809,000	Dec..	1890	2.00
85	Little Chief, s. l.	Colo..	10,000,000	200,000	50	*				820,000	Dec..	1890	.05
86	Little Rule, s.	Colo..	500,000	500,000	1					220,000	Dec..	1891	.02
87	Mammoth, s. l. c.	Utah	10,000,000	400,000	250	110,000		1882	.25	1,040,000	Dec..	1891	.10
88	Martin White, s.	Nev..	10,000,000	100,000	100	1,275,000	Jan..	1892	.25	140,000	Dec.	1886	.25
89	Mary Murphy, s. g.	Colo..	350,000	3,500	101	*				175,000	May..	1888	5.00
90	Matchless, s. l.	Colo..	500,000	500,000	1	*				15,000	Feb..	1890	.00½
91	Maxfield	Utah.	3,000,000	300,000	10					117,000	April	1892	.03
92	May Mazeppa, s. l.	Colo..	1,000,000	100,000	1					205,000	Oct..	1891	.03¾
93	Minas Prietas, g. s.	Mex..	1,000,000	100,000	10	*				350,000	Dec..	1890	.50
94	Minnesota, c.	Mich..	1,000,000	40,000	25	420,000	April	1886	1.00	1,820,000	Mar.	1876	
95	Mollie Gibson, s.	Colo..	5,000,000	1,000,000	5					1,950,000	July.	1892	.15
96	Monitor, g.	S. Dak	2,500,000	250,000	10	*				45,000	July.	1890	.03
97	Mono, g.	Cal..	5,000,000	50,000	100	760,000	Sept.	1890	.25	12,500	Mar..	1886	.25
98	Montana, Lt., g. s.	Mont.	3,300,000	660,000	5	*				2,619,075	June.	1891	.12½
99	Morning Star, s. l.	Colo..	1,000,000	100,000	10					925,000	April	1891	.25
100	Morning Star Drift, g	Cal..	240,000	2,400	100					61,200	May..	1892	3.00
101	Moulton, s. g.	Mont.	2,000,000	400,000	5	*				380,000	Dec..	1887	.07½
102	Mt. Diablo, s.	Nev..	5,000,000	50,000	100	137,500	June	1880	2.00	210,000	July.	1891	.10
103	Napa, g.	Cal..	700,000	100,000	7					490,000	July.	1892	.20
104	Navajo, g. s.	Nev..	10,000,000	100,000	100	520,000	May..	1891	.20	229,950	April	1889	.10
105	New California, g.	Colo..	800,000	160,000	5	*				45,800	May..	1890	.12½
106	New Guston, s.	Colo..	550,000	110,000	5					1,877,500	April	1892	.75
107	N. C. Hoover Hill, c. s.	N. C..	320,000	120,000	2½					30,000	Dec..	1885	.06½
108	North Belle Isle, s.	Nev..	10,000,000	100,000	100	445,000	Aug..	1891	.25	230,000	May	1888	.50
109	North Star, g.	Cal..	1,000,000	100,000	10					300,000	April	1889	.50
110	Omaha Cons., g.	Cal..	2,400,000	24,000	100					41,000	May..	1892	.15
111	Ontario, s. l.	Utah	15,000,000	150,000	100					13,950,000	June.	1892	.50
112	Ophir, g. s.	Nev..	10,000,000	100,000	100	4,210,640	April	1890	.50	1,595,800	Jan..	1880	1.00
113	Original, s. c.	Mont.	1,500,000	60,000	25	*				138,000	Jan..	1889	.05
114	Oro, s. l. g.	Colo..	500,000	100,000	5					95,000	July.	1890	.20
115	Osceola, c.	Mich..	1,250,000	50,000	25	480,000	April	1876	1.00	1,597,500	May.	1892	1.00
116	Pacific Coast, s.	Cal..	1,500,000	15,000	100					270,000	June.	1892	1.00
117	Parrot, c.	Mont.	1,800,000	180,000	10					1,532,000	May..	1892	.10
118	Plumas Eureka, g.	Cal..	1,406,250	140,625	10					2,643,559	April	1892	.18
119	Plymouth Con., g.	Cal..	5,000,000	50,000	100	*				2,289,000	Jan.	1888	.40
120	Quicksilver, pref., g.	Cal..	4,300,000	43,000	100					1,828,911	June	1891	1.25
12	" com., g	Cal..	5,700,000	57,000	100					643,867	July.	1882	.40
122	Quincy, c.	Mich..	1,250,000	50,000	25	200,000	Dec..	1862		6,170,000	Feb..	1892	4.00
123	Reed National, s. g.	Colo..	500,000	500,000	1	*				50,000	Dec..	1890	.01
124	Rialto, g.	Colo..	300,000	300,000	1	*				50,250	April	1892	.01¼
125	Richmond, s. l.	Nev..	1,350,000	54,000	25	*				4,346,325	Aug.	1891	.25
126	Ridge, c.	Mich..	500,000	20,000	25	219,939	Mar.	1886	.50	99,785	Feb..	1880	.50
127	Robinson Con., s. l.	Colo..	10,000,000	200,000	50	*				585,000	Mar.	1886	.05
128	Running Lode, g.	Colo..	1,000,000	1,000,000	1	*				36,000	May.	1892	.00 1-10
129	Savage, s.	Nev..	11,300,000	112,000	100	6,772,000	Feb..	1892	.50	4,400,000	June	1869	3.00
130	Sheridan, s. g.	Colo..	300,000	3,000	100	*				300,000	Oct..	1891	2.50
131	Shoshone, g.	Idaho	150,000	150,000	1					7,500	April	1883	.01
132	Sierra Buttes, g.	Cal..	2,225,000	122,500	10					1,507,257	April	1892	.12
133	Sierra Nevada, s. g.	Nev..	10,000,000	100,000	100	6,411,910	June	1892	.25	102,000	Jan..	1871	1.00
134	Sierra Nevada, s. l.	Idaho	1,000,000	1,000,000	1	*				40,000	May..	1889	.02
135	Silent Friend	Colo..	500,000	500,000	1					60,000	Aug.	1891	.02½
136	Silver Cord, s. l. g.	Colo..	4,500,000	450,000	10					265,000	April	1889	.10
137	Silver King, s.	Ariz..	10,000,000	100,000	100	180,000	Nov.	1890	.30	1,950,000	July	1887	.25
138	Silver Mg. of L. V., s. l.	N. M..	500,000	500,000	1	*				300,000	Dec..	1891	.05
139	Small Hopes Con., s.	Colo..	5,000,000	250,000	20	*				3,162,500	Oct..	1890	.10
140	Spring Valley, g.	Cal..	200,000	200,000	1	50,000	Oct..	1886	.25	50,000	Jan..	1881	.25
141	Standard, g. s.	Cal..	10,000,000	100,000	100	100,000	June	1890	.50	3,635,000	July.	1892	.10
142	Stormont, s.	Utah	500,000	500,000	1	*				155,000	Nov.	1881	.05
143	St. Joseph, l.	Mo..	1,500,000	150,000	10	*				1,974,000	Dec..	1890	.02
144	Tamarack, c.	Mich..	1,250,000	50,000	25	520,000	April	1885	3.00	2,960,000	June	1892	4.00
145	Tombstone, g. s. l.	Ariz..	12,500,000	500,000	25	*				1,250,000	April	1882	.10
146	United Verde, c.	Ariz..	3,000,000	300,000	10	*				207,500	Jan.	1892	.10
147	Viola Lt., s. l.	Idaho	750,000	150,000	5					337,500	Nov.	1888	.37½
148	Ward Con., s.	Colo..	2,000,000	200,000	10					20,000	Dec..	1889	.05
159	Woodside, s. l.	Utah.	100,000	100,000	10					25,000	Oct..	1889	.25
150	W. Y. O. D.	Cal..	30,000	15,000	2	22,500	May..	1891	.10	21,000	May.	1892	.10
151	Yankee Girl, s.	Colo..	1,300,000	260,000	5					1,405,000	April	1891	.50
152	Yellow Jacket, g. s.	Nev.	12,000,000	120,000	100	5,778,000	May.	1892	.25	2,184,000	Aug.	1871	2.50
153	Young America, g.	Cal..								175,000	Jan.	1884	10

G. Gold. S., Silver. L., Lead. C., Copper. B. Borax. * Non-assessable. †This company, as the Western, up to December 10th, 1891, paid $1,400,000. ‡Non-assessable for three years §The Deadwood previously paid $275,000 in eleven dividends and the Terra $75,000. Previous to the consolidation in August, 1884, the California had paid $31,320,000 in dividends, and the Con Virginia 10,000,000. **Previous to the consolidation of the Copper Queen with the Atlanta, August, 1885, the Copper Queen had paid $1,350,000 in dividends. ¶This company paid $190,000 before reorganization in 1890. ***This company acquired the property of the Raymond & Ely Company which had paid $3,075,000 in dividends. *** Previous to this company's acquiring Northern Belle, that mine declared $2,400,000 in dividends, against $425,000 in assessments.

NON-DIVIDEND PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par	Assessments. Total levied.	Assessments. Date and am't of last.		
1	Alliance, s. g.	Utah.	$100,000	100,000	$1	$120,000	Feb..	1891	.20
2	Alloyez, c.	Mich..	2,000,000	80,000	25	737,000	Jan..	1890	.70
3	Alpha Con., g. s.	Nev..	3,000,000	30,000	100	198,500	Jan..	1892	.15
4	Aita. s.	Nev..	10,080,000	100,800	100	3,369,880	Jan.	1892	.10
5	American Flag, s.	Colo..	1,250,000	125,000	10	300,000	June	1887	
6	Amity, s.	Colo..	250,000	250,000	1				
7	Anchor, s. l. g.	Utah.	3,000,000	150,000	20	410,000	June	1890	.20
8	Anglo-Montana, Lt.	Mont.	600,000	120,000	5				
9	Astoria, g.	Cal..	200,000	100,000	2				
10	Barcelona, g.	Nev..	5,000,000	200,000	25	*			
11	Belmont, g.	Cal..	500,000	500,000	1	*			
12	Belmont, s.	Nev..	5,000,000	50,000	100	735,000	April	1886	.10
13	Best & Belcher, s. g.	Nev..	10,080,000	100,800	100	2,380,075	Mar..	1892	.25
14	Black Oak, g.	Cal..	3,000,000	300,000	10	*			
15	Boston Con., g.	Cal..	10,000,000	100,000	100	170,000	Nov..	1883	.25
16	Brownlow, g.	Colo..	250,000	250,000	1				
17	Brunswick, g.	Cal..	2,000,000	400,000	5				
18	Buckeye, s. l.	Mont.	1,000,000	500,000	2				
19	Bullion, s. g.	Nev..	10,000,000	100,000	100	2,865,000	May.	1892	.25
20	Butte & Boston, c. s.	Mont.	5,000,000	200,000					
21	Butte Queen, g.	Cal..	1,000,000	100,000	10	6,000	Jan..	1892	.04
22	Calaveras, g.	Cal..	500,000	500,000	1	*			
23	California, c.	Cal..	1,000,000	100,000	10	9,000	Mar.	1892	.03
24	Carisa, g.	Wy..	500,000	100,000	5	*			
25	Carupano, g. s. l. c.	Ven..	200,000	100,000	2	*			
26	Cashier, g. s.	Colo..	500,000	250,000	2	*			
27	Cherokee, g.	Cal..	1,500,000	150,000	10				
28	Choilar, s. g.	Nev..	11,200,000	112,000	100	1,820,000	May.	1892	.50
29	Cleveland, t.	Dak..	1,000,000	500,000	2	*			
30	Colchis, s. g.	N. M..	500,000	50,000	10				
31	Colorado Silver	Colo..	1,625,000	325,000	5				
32	Comstock Tun.	Nev..	10,000,000	100,000	100	35,000	Mar.	1887	.15
33	Con. Imperial, g. s	Nev..	5,000,000	50,000	100	2,062,500	Jan..	1892	.25
34	Con. New York, s. g.	Nev..	5,000,000	100,000	50	110,000	Mar..	1892	.10
35	Con. Pacific, g.	Cal..	6,000,000	60,000	100	198,000	June	1890	.10
36	Con. Silver, s.	Mo..	2,500,000	250,000	10				
37	Crescent, s. l.	Colo..	3,000,000	300,000	10	*			
38	Crocker, s.	Ariz..	10,000,000	100,000	100	160,000	Jan..	1892	.10
39	Crowell, g.	N. C..	500,000	500,000	1	*			
40	Dahlonega, g.	Ga..	250,000	250,000	1	*			
41	Dandy, s.	Colo..	5,000,000	500,000	10				
42	Decatur, s.	Colo..	1,500,000	300,000	5	*			
43	Denver City, s.	Colo..	5,000,000	500,000	10	*			
44	Denver Gold, g.	Colo..	300,000	60,000	5				
45	Dickens-Custer, s.	Idaho	2,100,000	420,000	5				
46	Durango, g.	Colo..	500,000	500,000	1	*			
47	Eastern Dev. Co., Lt.	N. S..	1,500,000	150,000	10	990,000	Mar.	1886	1.00
48	El Dorado, g.	Cal..	1,000,000	250,000	4	*			
49	El Talento, g.	U.S.C.	500,000	500,000	2				
50	Emmons, s. l.	Colo.	2,000,000	2,000,000	1				
51	Empire, s.	Utah	10,000,000	100,000	100				
52	Eureka Tunnel, s. l.	Nev..	10,000,000	100,000	100	*			
53	Exchequer, s. g.	Nev..	10,000,000	100,000	100	940,000	Jan..	1892	.25
54	Found Treasure, g. s.	Nev..	10,000,000	100,000	100	130,500	Jan..	1892	.10
55	Gogebic I. Syn., i.	Wis..	5,600,000	200,000	25				
56	Gold Cup, s.	Colo..	500,000	500,000	1	*			
57	Golden Era, s.	Mont.	2,000,000	200,000	10	*			
58	Gold Flat, g.	Cal..	1,000,000	100,000	10	5,000	Mar..	1892	.05
59	Gold Rock, g.	Cal..	1,000,000	500,000	2	*			
60	Goodshaw, g.	Cal..	10,000,000	100,000	100	*			
61	Goodyear, g. s. l.	Mont.	1,000,000	200,000	5	13,000	Feb..	1892	.01
62	Grand Belt, c.	Tex..	12,000,000	120,000	100				
63	Grand Duke.	Colo..	800,000	80,000	10				
64	Gregory Con., g.	Mont.	3,000,000	300,000	10				
65	Harlem M. & M. Co., g.	Cal..	1,000,000	200,000	5				
66	Hartery Con., g.	Cal..	1,000,000	100,000	10	22,000	Oct..	1890	.05
67	Head Cent. & Tr., s. g.	Ariz..	10,000,000	100,000	100	16,981	Mar..	1892	.03
68	Hector, g.	Cal..	1,500,000	300,000	5	45,000	Jan..	1889	.15
69	Highland, c.	Mich..	500,000	25,000	20				
70	Holywood	Cal..	200,000	100,000	2				
71	Hortense, s.	Colo..	2,000,000	200,000	10				
72	Huron, c.	Mich..	1,000,000	40,000	25	280,000	May.	1887	3.00
73	Ironton, i.	Wis..	1,000,000	40,000	25				
74	Iroquois, c.	Mich..	1,250,000	50,000	25				
75	J. D. Reymert, s.	Ariz..	10,000,000	100,000	100				
76	Julia Con., g. s.	Nev..	11,000,000	110,000	100	1,463,000	Jan..	1889	.10
77	Lacrosse, g.	Colo..	1,000,000	100,000	10	*			
78	Lee Basin, s.	Colo..	5,000,000	500,000	10	*			
79	Lone Star Cons., g.	Cal..	500,000	500,000	1	10,000	April	1892	.00½
80	Madeleine, g. s. l.	Colo..	750,000	150,000	1	4,500	Feb..	1892	.00½
81	Mammoth Gold, g.	Ariz..	245,000	49,000	5	*			
82	Mayflower Gravel, g.	Cal..	1,000,000	100,000	10	*			
83	Medora, g.	Dak..	250,000	250,000	1	585,000	Mar.	1890	.50
84	Merrimac Con., g. s.	Colo..	5,000,000	500,000	10				
85	Mexican, g. s.	Nev..	10,000,000	100,000	100	*			
86	Middle Bar, g.	Cal..	400,000	200,000	2	2,892,980	May.	1892	.25
87	Mike & Starr, s. c.	Colo.	1,000,000	200,000	5	*			
88	Milwaukee, s.	Mont.	500,000	500,000	1	*			
89	Monitor, g.	Colo..	100,000	100,000	1	12,500	May.	1891	.01
90	Montreal, g. s. l.	Utah.	750,000	150,000	5	4,500	Feb..	1892	.00½
91	Mutual Mg. & Sm.	W'sh.	100,000	100,000	1	*			
92	Native, c.	Mich..	1,000,000	40,000	25				
93	Neath, g.	Colo..	1,000,000	100,000	10				
94	Nevada Queen, s.	Nev..	10,000,000	100,000	100	200,000	Oct..	1889	.25
95	New Germany, g.	N. S..	100,000	100,000	1	*			
96	New Pittsburg, s. l.	Colo..	2,000,000	200,000	10	*			
97	North Standard, g.	Cal..

STOCK MARKET QUOTATIONS.

Aspen. June 25.

The closing quotations were as follows:

Agnes C.	$....
Argentum Juniata	.55
Aspen Deep Shaft	.10
Aspen Contact	4.50
Best Friend	.22
Bimetallic	.35
Bushwacker	.30
Carbonate Chief	.11
Empire Champion	.20
Justice	.10
Little Annie	.20
Mollie Gibson	11.00
Nolan Creek	....
Park, Mamie & Queen	...
Pontiac	.18
Sheep Mountain S. & M. Co.	.25
Smuggler	15.00
St. Joe & Mineral Farm	.17
Yellow Boy	.20

Baltimore, Md. June 30.

COMPANY.	Bid.	Asked.
Atlantic Coal	$....	1.00
Balt. & N. C.	.04	....
Big Vein Coal	....	....
Conrad Hill	....	....
Cons. Coal	.27	.29
Diamond Tunnel	....	....
George's Creek Coal.	....	....
Lake Chrome	.05	.15
Maryland & Charlotte	....	....
North State	....	....
Silver Valley	.70@.72	76@80

Pittsburg, Pa.

Prices highest and lowest for the week ending June 30:

COMPANY.	H.	L.
Allegheny Gas Co.	$.....	$....
Bridgewater Gas Co.	28.00	26.20
Chartiers Val. Gas.	12.75	11.50
Columbia Oil Co.	....	....
Consignee Mining Co.	....	....
Consolidated Gas Co.	....	....
East End Gas Co.	....	....
Fisher Oil Co.	....	....
Forest Oil	....	....
Hazlewood Oil Co.	....	....
Hidalgo Mining Co.	....	....
La Noria Mining Co.	....	....
Luster Mining Co.	9.75	9.38
Mansfield C. & C. Co.	....	....
Manufacturers Gas Co.	....	....
Nat. Gas Co. of W. Va.	....	....
N. Y. & Clev. Gas Coal Co.	50.50	50.00
Ohio Valley Gas Co.	....	....
Pennsylvania Gas Co.	....	....
People's Natural Gas Co.	18.00	16 50
People's N. G. & P. Co.	12.63	11.25
Philadelphia Co.	19.00	18.25
Pine Run Gas Co.	....	..
Pittsburg Gas Co.	....	....
Red Cloud Mining Co	....	....
Silverton Mining Co.	....	....
South Side Gas Co.	....	....
Sterling Silver Mining Co.	....	....
Tuna Oil Co.	....	....
Union Gas Co.	....	....
Washington Oil Co.	....	....
W'moreland & Camb.	....	....
Wheeling Gas Co.	21.00	18.50
W'house E. Light	19.00	11.50
W'house Air Brake Co.	145.00	126.00
W'house Brake Co., Ltd.	90.00	85.00

Deadwood. June 25.

	Bid.	Asked.
Bullion	.06	.07
Caledonia	.75	.80
Calumet	.08	.10
Cambrian	....	.02
Carthage	.01	.01½
Cora	....	.04
Deadwood Terra	....	2.30
De Smet	.25	.30
Double Standard	....	.16
Elk Mountain	.00½	.01
Emmett	.01	.02
Equitable	....	.04
Florence	....	.07
Golden Reward	....	1.50
General Merritt	.08	.10
Harmony	.09	.10½
Hester A.	.02	.03
Homestake	13 50	14.00
Hermit	.01½	.02½
Iron Hill	....	.27½
Isadorah	.20	.26
Maggie	.07	.10
Monitor	.	.03½
Rainbow	.01½	.02½
Retriever	....	.09½
Ross-Hannibal	....	....
Ruby Bell	....	.22
Ruby Wilkes	.19	.24
Seabury-Calkins	....	.06½
Silver Queen	.02	.02½
Stewart	....	.15
Tornado	.13	.14½
Troy	....	.01½
Uncle Sam	....	.04

St. Louis. June 29.

CLOSING PRICES.

	Bid.	Asked
Adams, Colo	$ .85	$...
American & Nettie, Colo.	.55	.....
Bi-Metallic, Mont.	....	....
Central Silver	....	.01½
Elizabeth, Mont.	.51¼	.55
Granite Mountain, Mont.	11.00	12.00
Hope	....	4.75
Leo	.02	.06
Little Albert	....	.03
Montrose Placer, Colo.	....	.11
Mickey Breen	....	....
Pat Murphy, Colo.	.01	....
Small Hopes, Colo.	.85	.92½
Silver Age	....	.02
Silver Bell	....	.13
Yuma, Ariz.	....	....

Helena, Mont.

(Special report by SAMUEL K. DAVIS.)
Prices highest and lowest for week ending June 25, 1892:

	H.	L.
Bald Butte (Mont.)	$2.50	$2.00
Benton Group, Mont.	.45	.40
Bi-Metallic, Mont.	.45	.42½
California (Castle), Mont.	.20	.15
Champion (Oro Fino), Mont.	.20	.15
Combination(Philipsb'g), Mont.	1.20	1.10
Copper Bell (Cataract), Mont.	.05	.03½
Cornucopia, Mont.	.25	.20
Cumberland (Castle), Mont.	.57½	.52½
Elizabeth (Phillipsburg), Mont.	.55	.50
Florence (Neihart), Mont.	.40	.30
Fourth of July, Wash.	.07½	.05½
Glengary (Butte), Mont.	.30	.25
Helena & Victor, Mont.	2.10	1.75
Ingersoll, Mont.	.15	.10
Iron Mountain(Missoula), Mont.	1.10	1.02½
Jersey Blue (Butte).	.10	.07½
Lone Pine Consolidated	3.00	2.85
Moulton, Mont.	2.00	1.75
Polaris(Beaverhead Co.), Mont.	2.25	....
Poorman (Cœur d'Alene), Idaho.	.95	.87½
Queen of the Hills (Neihart)	1.25	1.15
SouthernCross(DeerLodge), Mont.	....	.....
Whitlach Union & MacIntyre	....	.50
Yellowstone (Castle), Mont.	.25	.20

Foreign Quotations.

London. June 18.

	Highest.	Lowest.
Alaska Treadwell	£2⅛	£1⅞
Amador, Cal.	4s.	3s.
American Belle, Colo.	2s. 9d.	2s. 3d.
Appalachian, N. C.	...	....
Can. Phosphate, Can.	....	....
Colorado, Colo.	1s. 6d.	1s. 3d.
Cons. Esmeralda, Nev.	....	....
De Lamar, Idaho	27s.	25s.
Dickens Custer, Idaho.	9d.	3d.
Eagle Hawk	2s. 6d.	1s. 6d.
East Arevalo, Idaho.	....	....
Eberhardt	1s.	6d.
Elkhorn, Mont.	£2	£1⅞
Elmore, Idaho	....	....
Emma, Utah	9d.	6d.
Esmeralda	9s.	3s.
Flagstaff, Utah	3s. 9d.	3s. 3d.
Garfield, Nev	9d.	3d.
Golden Feather	17s. 6d.	16s.6d.
Golden Gate, Cal.	5s. 9d.	5s. 3d.
Golden Leaf, Mont.	2s. 6d.	2s.
Golden River, Cal.	....	....
Guston	£2¾	£2⅛
Idaho	9d.	3d.
Jay Hawk, Mont.	10s.	9s. 6d.
Josephine, Cal.	....	....
Kohinoor, Colo.	....	....
La Luz, Mex.	3s. 3d.	2s. 9d.
La Plata, Colo.	1s. 3d.	9d.
La Valera, Mex.	....	....
Maid of Erin, Colo.	£1 1-16	£1 5-16
Mammoth Gold, Ariz.	1s. 9d.	1s. 3d.
Mount McClellan	4s.	3s.
Montana, Mont.	6s. 6d.	5s. 6d.
Mona Lake Gold	....	....
New California, Colo.	9d.	3d.
New Consolidated	6d.	3d.
New Eberhardt, Nev.	1s.	6d.
New Gold Hill, N. C.	9d.	3d.
New Guston, Colo.	£2⅛	£1⅞
New Hoover Hill, N.C.	9d.	3d.
New Russell, N. C.	2d.	1d.
New Viola, Idaho	....	....
Old Lout, Colo	£3-16	£1-16
Parker Gold, N. C.	6d.	3d.
Pittsburg Cons., Nev.	9d.	3d.
Poorman	5s. 6d.	5s. ....
Plumas Eureka	£⅝	£⅛
Richmond Con., Nev.	£⅝	£⅜
Ruby, Nev.	6d.	3d.
Sam Christian, N. C.	....	....
Sierra Buttes, Cal.	£⅜	£¼
" Plumas Eur., Cal.	£9-16	£7-16
Silver King	....	....
United Mexican, Mex.	2s.	1s.
West Argentine, Colo.	6d.	3d.
Yankee Girl, Colo.	6s. 9d.	6s. 3d.

Paris. June 16.

	Francs.
East Oregon, Ore.	0.75
Forest Hill Divide, Cal.	42.00
Golden River, Cal.	130.00
" " parts	30.00
Laurium, Greece	725.00
Lexington, Mont	132.00
" parts	2 90
Nickel, New Caledonia	950.00
Rio Tinto, Spain	433.25
" " oblig.	520.00
" " "	510.00
Tharsis, Spain	125.00
Vieille-Montagne, Belgium	560.00

CURRENT PRICES.

These quotations are for wholesale lots in New York unless otherwise specified.

Acid—Acetic, No. 8, pure, 1,040, ℔ lb. .06@.08
Commercial, in bbls. and cbys. .015@.016
Carbonic, liquefied, ℔ lb. .30
Chromic, chem. pure, ℔ lb 1.00
for batteries .40
Hydrobromic, dilute, U. S. P. .25
Hydrocyanic, U. S. P. .45
Hydrofluoric .20
Alcohol—95%, ℔ gall. $2.30@$2.40
Absolute $3.80
Ammoniated $2.80
Alum—Lump, ℔ lb. .016@.017
Ground, ℔ lb. .0165@.0175
Powdered .04½@.05
Lump ℔ ton, Liverpool £5
Aluminum Chloride—Pure, ℔ lb. $1.25
Amalgamating solution, ℔ lb. .60
Sulphate .01¾@.03
Ammonia—Sul., in bbl. lots, ℔ lb. .02½@.03
Carbonate, ℔ lb., English and German. .07¾
Muriate, white, in bbls., ℔ lb. .08¼
Aqua Ammonia—(in cbys) 18° ℔ lb. .03@.04
20°, ℔ lb. .04@.05
26°, ℔ lb. .04¾@.05
Antimony—Oxymur, ℔ lb. .04@.06
Regulus, ℔ ton, London £42½@£43½
Argols—Red, powdered, ℔ lb. .15
Arsenic—White, powdered ℔ lb. .02⅞@.03
Red ℔ lb. .05@.065
Yellow .08@.09
White at Plymouth, ℔ ton £12 2 6
Asbestos—Canadian, ℔ ton $50@$300
Italian, ℔ ton, c. i. f. L'pool £18@£60
Ashes—Pot, 1st sorts, ℔ lb. 4.75@5
Pearl .06@.06¼
Asphaltum—
Prime Cuban, ℔ lb. .04@.05¼
Hard Cuban, ℔ ton $28.00
Trinidad, refined, ℔ ton $30.00
Egyptian, ℔ lb. .08@.09
Californian, at mine, ℔ ton $12.00
at San Francisco, ℔ ton $15.00
Barium—Carbonate, pure, ℔ lb. .45
Carbonate, commercial, ℔ lb. .05@.10
Chlorate, crystal, ℔ lb. .75
Chloride, commercial, ℔ lb. .05@.10
pure, ℔ lb. .16
Iodide, ℔ oz. .40
Nitrate, ℔ lb. .07@.07½
Sulph., Am. prime white, ℔ ton $18@$19
Sulph., foreign, floated, ℔ ton $21@$23
Sulph., off color, ℔ ton $11.50@$14.00
Carb., lump, f. o. b. L'pool, ℔ ton £6
No. 1, Casks, Runcorn, " " £4 10 0
No. 2, bags, Runcorn, " " £3 15 0
Bauxite—℔ ton $10.00
Bichromate of Potash—Scotch, ℔ lb. .10½@.11
American, ℔ lb. .10½@.11
Bichromate of Soda—℔ lb. .09½@.10
Borax—Refined, ℔ lb., in car lots .08@.08½
San Francisco .08½
Concentrated, in car lots .08@.08¾
Refined, Liverpool ℔ ton £29
Bromine—℔ lb. .15@.22
Cadmium Minion—℔ lb. $2.00
Cadmium Iodide—℔ lb. $5.50
Chalk—℔ ton $1.75@$2.00
Precipitated, ℔ lb. .05@.06
China Clay—English, ℔ ton $13@$18.00
Domestic, ℔ ton ?9@$11
Chlorine Water—℔ lb. .10
Chrome Yellow—℔ lb. .10@.25
Chrome Iron Ore—℔ ton, San Francisco $10.00
Chromalum—Pure, ℔ lb. .40
Commercial, ℔ lb. .12
Cobalt—Oxide, ℔ lb. $2.50@$2.90
Copper—Sulph. English Wks. ton £20@£21
Vitriol (blue), ordinary 03¼@.03¾
" " extra .04½
Nitrate, ℔ lb. .40
Copperas—Common, ℔ 100 lbs. .73@90
Best, ℔ 100 lbs. .85@$1.00
Liverpool, ℔ ton, in casks £2
Corundum—Powdered, ℔ lb. .04½@.09
Flour, ℔ lb. .03
Cryolite—Powdered, ℔ lb., bbl. lots. .07
Emery—Grain, ℔ lb. (℔ kg.) .04½@.05
Flour, ℔ lb. .02½@.10
Epsom Salt—℔ lb. .01½
Feldspar—Ground, ℔ ton $20.00
Crude $10@$14
Fluorspar—Powdered, No. 1, ℔ ton. $30.00
French Chalk—
Fuller's Earth—Lump, ℔ ton. $20@$25
Glauber's Salt—in bbls., ℔ lb. .01@.0125
Glass—Ground, ℔ lb. .10
Gold—Chloride, pure, crystals, ℔ oz. $12.00
pure, 15 gr., c. v., ℔ doz. $5.40
liquid, 15 gr., g. s. v., ℔ doz. $5.50
Chloride and sodium, ℔ oz 15 gr., c.v., ℔ doz. $6.00 $2.88
Oxide, ℔ oz. $27.25
Gypsum—Calcined, ℔ bbl. $1.25@$1.50
Land Plaster
Iodine—Resublimed $3.30@$3 35
Iron—Nitrate, 40°, ℔ lb. .01½
47°, ℔ lb. .02½
Kaolin—*See China Clay.*
Kieserite—℔ ton $9@$10
Lead—Red, ℔ lb. .06¾@.07½
White, American, in oil, ℔ lb. .06½@.07½
White, English, ℔ lb., in oil .08½@.08¾
Acetate, or sugar of, white .12@.13
Granulated
Nitrate .09@.10
Lime Acetate—Am. Brown, $1.00@$1.05
" Gray, $1.75@$1.87½
Litharge—Powdered, ℔ lb. .06¾@.07½
English flake, ℔ lb. .09@.09¾
Magnesite—Crude, ℔ ton of 1,015 kilos $14 75
Calcined, ℔ ton of 2,240 lbs. $22.00
Brick, ℔ ton of 2,240 lbs. $47.50
Manganese—Ore, per unit .23@.28
Oxide, ground, ℔ lb. .02½@.06½
Mercuric Chloride—(*Corrosive Sublimate*) ℔ lb. .66@.69
Powdered, ℔ lb. .54
Marble Dust—℔ bbl. $1.29
Metallic Paint—Brown ℔ ton. $20@$25
Red $20@$25
Mineral Wool—Ordinary slag .01½
Ordinary rock .02½
Ground, ℔ ton
Mica—In sheets according to size.
1st quality, ℔ lb. .25@$6.00
Naphtha—Black
Nitre Cake—℔ ton $10.00
Ochre—Rochelle, ℔ lb. $1.50@$1.55
Washed Nat Oxf'rd, Lump, ℔ lb. .06½@.06¾
Washed Nat Oxf'rd, Powder, ℔ lb. .07@.07½
Golden, ℔ lb. .03¾@.04
Domestic, ℔ lb. .0¾@.01¼
Oils, Mineral—
Cylinder, light filtered, ℔ gal. .14@.16
Dark filtered, ℔ gal. .10@.13
Extra cold test, ℔ gal. .2(@.24
Dark steam refined, ℔ gal. C9@.12
Phosphorus—℔ lb. .55@.60
Precip., red, ℔ lb. .85@.90
white, ℔ lb. .93@.97
Plumbago—Ceylon, ℔ lb. .04@.05
American, ℔ lb. .05@.07
Potassium—Cyanide, ℔ lb., C. P. .70
67%, ℔ lb. .45
50%, ℔ lb. .40
Bromide, domestic, ℔ lb. .23@.25
Chlorate, English, ℔ lb. .12¾@.13
Chlorate, powdered, English, ℔ lb. .13@.13½
Carbonate, ℔ lb., by casks, 82% .01½@.05¾
Caustic, ℔ lb., pure slick .06½@.07
Iodide, ℔ lb. $2.58@$2.63
Nitrate, refined, ℔ lb. .06@.08
Bichromate, ℔ lb. .10@.11
Yellow Prussiate, ℔ lb. .23½@.24½
Red Prussiate, ℔ lb. .40@.45
Pumice Stone—Select lumps, lb. .04@.15
Original cks., ℔ lb. .01¼@.02
Powdered, pure, ℔ lb. .01¾@.02¼
Pyrites—Non-cupreous, p. units. .12@.15
Quartz—Ground, ℔ ton $12.50@$17.50
Rotten Stone, Powdered, ℔ lb. .03¼@.03½
Lump, ℔ lb. .06@.07
Original cks, ℔ lb. .04½@.05¼
Rubbing stone, ℔ lb. .03½@.04
Sal Ammoniac—lump, in bbls., ℔ lb. .80½
Salt—Liverpool, ground, ℔ sack .700
Domestic, fine, ℔ ton $7@$7.5
Common, fine, ℔ ton $4.50@$5
Turk's Island, ℔ bush .26@.28
Salt Cake—℔ ton $10.00
Saltpeter—Crude, ℔ lb. .03¾@.04¼
Soapstone—
Sodium—Prussiate, ℔ lb. .22@.24
Phosphate, ℔ lb. .06@.08
Stannate, ℔ lb. .08@.15
Tungstate, ℔ lb. .
Hyposulphite, ℔ lb., in casks. .0235@.0245
Strontium—Nitrate, ℔ lb. .09@.09½
Sulphur—Roll, ℔ lb. .02¼
Flour, ℔ lb. .02½
Sylvinit, 23@27%, S.O.P., per unit. 40@.42½
Talc—Ground French, ℔ lb. .01¼@.01½
American No. 1, ℔ lb. .01@.01¼
Terra Alba—French, ℔ lb. .75@.80
English, ℔ lb. .70@.75
American, No. 1, ℔ lb. 1.00
American, No. 2, ℔ lb. .45@.50
Tin—Crystals, in kegs or bbls. .14@.15
feathered or flossed. .25
Muriate, single .07@.08
Double or strong, 54° B. .10@.12
Oxy. or nitro .19
Tin Plates, ℔ box, Swansea, best charcoal .18@.19
best coke .15@.16
Vermilion—Imp. English, ℔ lb. .90@.95
Am. quicksilver, bulk .65
Am. quicksilver, bags .68 @ .72
Chinese .95 @$1.00
Trieste .90 @ .95
American .11½@ .13
Zinc White—Am., Dry, ℔ lb .04½@ 05
Antwerp, Red Seal, ℔ lb. .07¼
Paris, Red Seal, ℔ lb. .08@.08½
Muriate solution .06
Sulphate crystals, in bbls., ℔ lb. .03¾

THE RARER METALS.

Aluminum—℔ lb. .50@.65
Arsenic—(Metallic), per lb. .40
Barium—(Metallic), per gram $4.00
Bismuth—(Metallic), per lb. $2.40
Cadmium—(Metallic), per lb. $1.00
Calcium—(Metallic), per gram $10.00
Cerium—(Metallic), per gram $7.50
Chromium—(Metallic), per gram $1.00
Cobalt—(Metallic), per lb. $6.00
Didymium—(Metallic), per gram $9.00
Erbium—(Metallic), per gram $7.50
Gallium—(Metallic), per gram $140.00
Glucinum—(Metallic), per gram $12.00
Indium—(Metallic), per gram $9.00
Iridium—(Metallic), per oz. $7.00
Lanthanum—(Metallic), per gr. $10.00
Lithium—(Metallic), per gram $10.00
Magnesium—(Powdered), per lb. $4.00
Manganese—(Metallic), per lb. $1.10
Chem. pure, per oz. $10.00
Molybdenum—(Metallic), per gm .50
Niobium—(Metallic), ger gram $5.00
Osmium—(Metallic), per oz. $65.00
Palladium—(Metallic), per oz. $35.00
Platinum—(Metallic), per oz. $10@$13
Potassium—(Metallic), per lb. $28.00
Rhodium—(Metallic), per gram $5.00
Ruthenium—(Metallic), per gm. $5.50
Rubidium—(Metallic), per gram $2.00
Selenium—(Metallic), per oz. $1.80
Sodium—(Metallic), per lb. 5@.75
Strontium—(Metallic), per gm .60
Tantalium—(Metallic), per gram $9.00
Telurium—(Metallic), per lb. $5.00
Thallium—(Metallic), per gram .20
Titanium—(Metallic), per gram $2.20
Thorium—(Metallic), per gram $17.00
Tungsten—(Metallic), per lb. .80
Uranium—(Oxide), per lb. $5.00
Metallic, per gm. .20
Vanadium—(Metallic), per gm. $22.00
Yttrium—(Metallic), per gram $9.00
Zirconium—(Metallic), per oz. $65.0